INSTRUCTION MANUAL

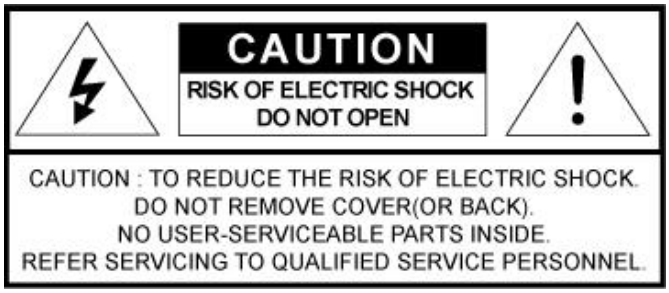
NETWORK BOX CAMERA

Please read this manual thoroughly before use, and keep it handy for future reference.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PROCUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECT THROUGH THE VENTILATION GRILLS OR OTHER OPENNINGS ON THE EQUIPMENT.

CAUTION


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK.
DO NOT REMOVE COVER(OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

FCC COMPLIANCE STATEMENT

INFORMATION TO THE USER: THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.
OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

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CAUTION: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS A DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.

CET APPAREIL NUMERIQUE DE LA CLASSE A SET CONFORME A LA NORME NMB-003 DU CANADA.

CE COMPLIANCE STATEMENT

WARNING: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been moisture, does not operate normally, or has been dropped.
15. ***CAUTION – THESE SERVICING INSTRUCTIONS ARE FOR USE BY QUALIFIED SERVICE PERSONNEL ONLY. TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE OPERATING INSTRUCTIONS UNLESS YOU QRE QUALIFIED TO DO SO.***
16. ***Use satisfy clause 2.5 of IEC60950-1/UL60950-1 or Certified/Listed Class 2 power source only.***
17. ITE is to be connected only to PoE networks without routing to the outside plant.

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1. Product Description

This manual applies to the IPC560TDN network camera.

The Network Camera supports the network service for a sensor image with progressive scan, which can be monitored on a real-time screen regardless of distances and locations. By using its dedicated program, many users are able to have an access to the Network Camera at once or a single user can monitor various network cameras at the same time. It also enables users to play, store and retrieve a monitoring image by using a PC. All the settings and real-time monitoring screens are also provided through an access to the web.

The Network Camera is a one-port video camera including two-way audio, fully featured for security surveillance and remote monitoring needs. It is based on the DSP compression chip, and can digitize one analog video source and make it available on the network as real-time, full frame rate Motion JPEG and H.264 (or MPEG-4) video streams.

The alarm input and alarm output can be used to connect various third party devices, such as, door sensors and alarm bells.

Components

The system comes with the following components:

Network Camera unit

Installation CD

Installation Guide

Note: Check your package to make sure that you received the complete system, including all components shown above.

Key Features

• Brilliant video quality
The Network Camera offers the highly efficient H.264 video compression, which drastically reduces bandwidth and storage requirements without compromising image quality. Motion JPEG is also supported for increased flexibility.

• Dual streams
The Network Camera can deliver dual video streams simultaneously at full frame rate in all resolutions up to D1 (720x480 in NTSC, 720x576 in PAL) using Motion JPEG and H.264 (or MPEG-4). This means that several video streams can be configured with different compression formats, resolutions and frame rates for different needs.

• Image setting adjustment
The Network Camera also enables users to adjust image settings such as contrast, brightness and saturation to improve images before encoding takes place.

• Intelligent video capabilities
The Network Camera includes intelligent capabilities such as enhanced video motion detection. The network camera's external inputs and outputs can be connected to devices such as sensors and relays, enabling the system to react to alarms and activate lights or open/close doors.

• Power over Ethernet
Support for Power over Ethernet (IEEE802.3af) enables the unit, as well as the analog camera that is connected to it, to receive power through the same cable as for data transmission. This makes for easy installation since no power outlet is needed.

• Audio support
The Network Camera also supports two-way audio.

• Improved Security
The Network Camera logs all user access, and lists currently connected users. Also, its full frame rate video can be provided over HTTPS.

• Camera
 -. Superior image quality (560 TV Lines).
 -. 0.3 Lux (Color) @ F1.2 Sensitivity.
 -. C/CS, backfocus cam for easy adjustment.
 -. Auto electronic shutter [1/60(1/50) ~ 1/120,000] and manual electronic shutter modes.
 -. Full control via the OSD menu key on the side of the camera.
 -. Auto and manual white balance modes.
 -. BLC (Back Light Compensation)
 -. Day&Night (Auto / Color / B/W)
 -. AGC (Auto Gain Control)
 -. Incredible noise reduction for picture quality & file size.
 -. Sens-up (x2 ~ x128)
 -. Privacy Zone 8 points.
 -. MIRROR
 -. VIDEO OUT(BNC)

Overview

• Front View

NO	Function
1	Back-focus adjusting locking screw
2	Auto IRIS lens connector
3	Setup Buttons

• Rear View

NO	Function	Description
1	Power adaptor terminal	Main Power, 2pin terminal, DC12V/AC24V max. 6.5Watt.
	RS485 terminal	Connects PTZ or PT device.
2	Power Indicator	Indicates power input.
3	Status Indicator	Indicates camera status.
4	Video Out	Connects the video output. This BNC connector provides a 1.0Vp-p/75 ohms composite video signal.
5	6pin Terminal I/O	Connects alarm In/Out, audio In/Out.
6	Reset Button	Executes the factory default.
7	Network connector (PoE)	RJ-45 port compatible with 10/100Mbps having PoE functionality.

• LED Indicators

LED	Color	Indication
Network	Green	Steady for connection to a 100 Mbit/s network. Flashes for network activity.
	Amber	Steady for connection to 10 Mbit/s network. Flashes for network activity.
	Unlit	No network connection.
Status	Red	Steady red for failed upgrade or booting.
Power	Green	Steady green for normal operation or booting. Flashes green during firmware upgrade.

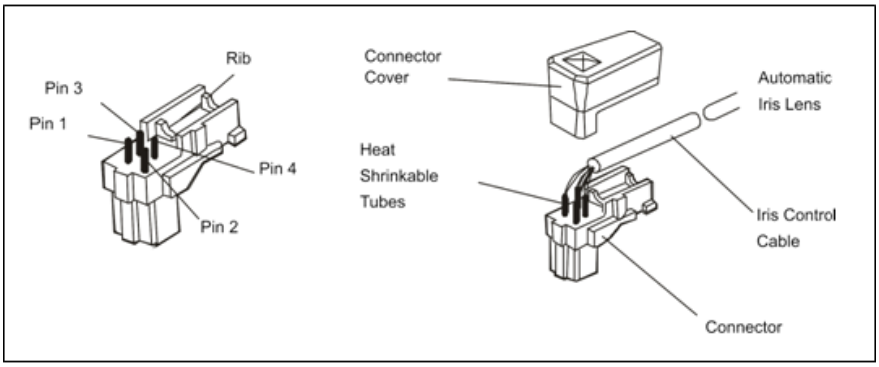
Note: Steady green and red during booting. Flash green and red during factory default.

Camera Adjustment

• Video auto IRIS installation & adjustment

The camera supports video-type auto iris lenses which adjust to changing light levels. Perform the following steps to install and adjust a video-type auto iris lens.

If necessary, solder the lens control wires to the connector supplied with the camera.



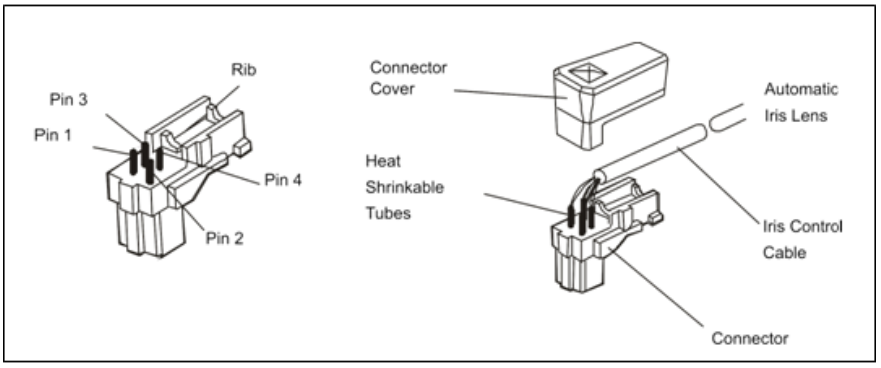
1. Attach the video-type auto iris lens to the lens mount on the front of the camera.

Pin	Name	Wire Color
1	Voltage +	Red
2	Open	-
3	Video	White
4	Ground	Black

2. **IMPORTANT:** The minimum Plug the connector from the lens into the auto iris jack on the back of the camera. The connector is polarized and can only be inserted into the jack one way.
3. Apply power to the camera.
4. The OSD AE menu in the lens select should be in the "VIDEO".

5. Adjust the focus ring on the lens for an optimum picture. If a picture is not visible, set the lens for proper exposure by adjusting the ALC (Automatic Level Control) and the level on the lens. The ALC setting can range between AVG (average) or PK (peak). A midrange setting is appropriate for most applications.
   For ALC adjustments: AVG To slow the reaction of the lens to changing light, set the range to the AVG setting to average the video level from the camera. Use when there are bright spots in the picture such as lights or glare from the sun.
   PK To increase the speed of the lens reaction to the changing light, set the lens adjustment to PK so the lens will adjust to the brightest or peak object in the video. Use this setting if you want to see the brightest object and not the background objects.
   For Level adjustments: Adjust the level control for the best picture during the day. A night adjustment may not provide the proper setting for controlling the light during the day.
6. Set the back focus of the camera before the final adjustment of the video level.
7. If the auto iris has a gain adjustment and the picture oscillates between open and closed under bright lights, slowly turn the gain adjustment counter clockwise until the oscillating stops. Increase the light getting to the camera by adjusting the level control and re-adjusting the gain control.

• DC auto IRIS lens installation & adjustment



1. Solder the lens control wires to the connector supplied with the camera.

Pin	Name	Wire Color
1	Damp Coil -	Blue
2	Damp Coil +	Red
3	Drive Coil +	White
4	Drive Coil -	Green

2. Attach the DC-type auto iris lens to the lens mount on the front of the camera.

3. Plug the connector into the auto iris jack on the side of the camera. The connector is polarized and can only inserted into the jack one way.

4. Apply power to the camera.
5. The OSD AE menu in the lens select should be in the "DC↓".
6. Adjust the auto iris lens for an optimum picture using the LEVEL control on the "DC↓" of the OSD AE MENU.

• Manual IRIS lens adjustment

When using a manual iris lens, turn the iris ring on the lens to the OPEN position and adjust the manual iris for the appropriate range. Adjust during the brightest conditions, opening the lens to the minimum f-stop yielding a good picture under the brightest scene conditions. Do not saturate the picture.
The manual iris is used in indoor applications where lighting from windows can considerably affect the light level of the room.

• Back Focus adjustment

For best results, perform back focus adjustments at night or while using a #6 or #8 welder's glass in front of the lens. The focus of the camera will change slightly if the camera iris was adjusted on a light scene, then changes to a dark scene. However, the camera will remain in focus if the iris was focused on a dark scene and the scene lightens.

1. The lens should be mounted on the camera before applying power.
2. If a picture is visible, focus on the picture. If the picture is not visible, open the iris on the lens. Open the lens as wide as possible by placing the welder's glass in front of the lens and forcing the lens to automatically open.
3. When the iris is open to the widest point, re-adjust the focus for clear picture. If a clear picture is not possible, set the focus ring to midrange.
4. Loosen the back focus lock screw.
5. Adjust the back focus ring for a clear picture.

6. Tighten the back focus lock screw.
7. Fine tune the focus with the focus ring on the lens.
8. Remove the welder's glass from in front of the lens.
9. Adjust the iris of the lens for the best picture quality.

• Zoom lens back focus adjustment

The objective of back focusing a zoom lens is similar to that of a fixed focal length camera except the back focus is also adjusted to maintain the focus when "zooming" the lens in and out on a scene.

1. Choose an object at the farthest range set for viewing with a zoom lens.
2. Make sure the iris of the lens is wide open. Do this by adjusting the camera at night or use a welders glass in front of the lens.
3. Adjust the focus to the stop on the far range.
4. Adjust the zoom on the lens to obtain the widest picture.
5. Loosen the back focus lock screw.
6. Adjust the back focus ring for the clearest picture.
7. Tighten the back focus lock screw.
8. Adjust the zoom on the lens to the far telephoto position.
9. Adjust the back focus ring for the clearest picture.
10. Adjust the zoom on the lens back to the widest picture.
11. Loosen the back focus screw.
12. Re-adjust the back focus for the clearest picture.
13. Tighten the back focus lock screw.
14. Repeat the previous steps as necessary to maintain a clear picture throughout the entire zoom range.

2. Installation

For the operation of the Network Camera, it is necessary to connect a network cable for data transmission, power connection from power adapter. Depending on operation methods, it is possible to connect an alarm cable or audio cable additionally. For its fixation on different locations, please consult with an installer.

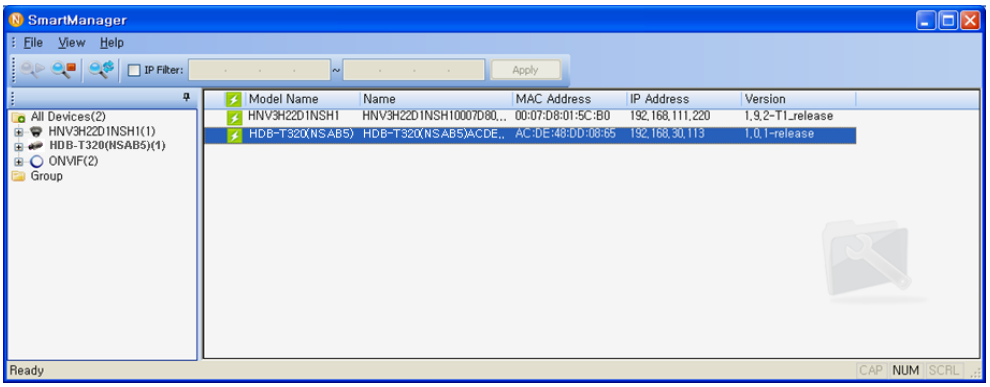
Network Connection

The Network Camera supports the operation through the network. Therefore, it is necessary to connect a standard RJ-45 cable to it. Generally a cross-over cable is used for direct connection to a PC, while a direct cable is used for connection to a hub.

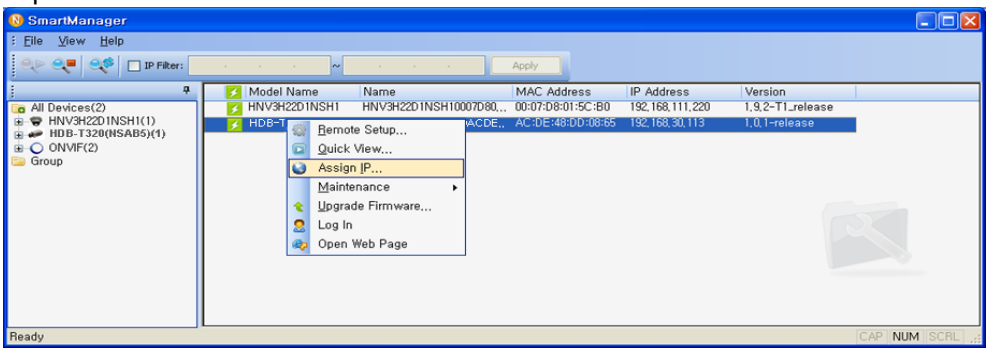
IP Assignment

When the network camera is first connected to the network it has no IP address. So, it is necessary to allocate an IP address to the device with the "Smart Manager" utility on the CD.

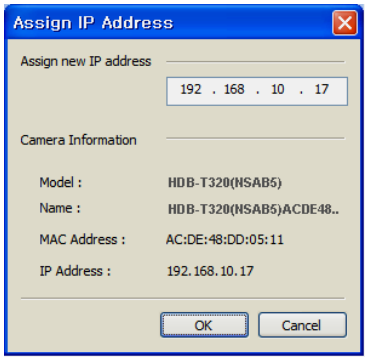
1. Connect the Network Camera / device to the network and power up.
2. Start SmartManager utility (Start>All Programs>SmartManager>SmartManager), the main window will be displayed, after a short while any network devices connected to the network will be displayed in the list.



3. Select the camera on the list and click right button of the mouse. You can see the pop-up menu below.



4. Select Assign IP. You cam see a Assign IP window.
   Enter the required IP address.



Note: For more information, refer to the SmartManager User's Manual.

3. Operation

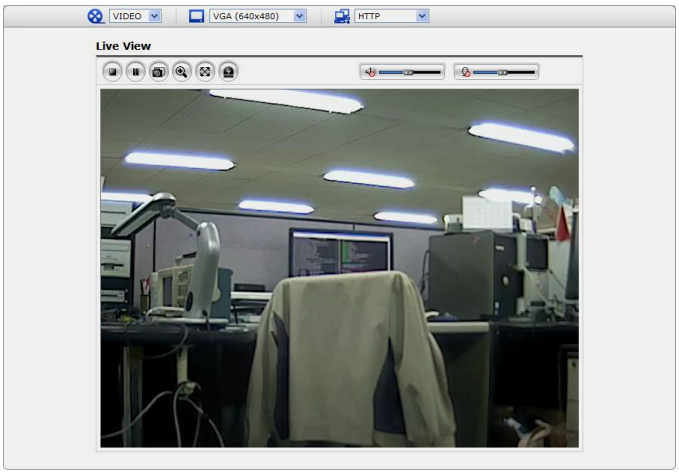
The Network Camera can be used with Windows operating system and browsers. The recommended browsers are Internet Explorer, Safari, Firefox, Opera and Google Chrome with Windows.

Note: To view streaming video in Microsoft Internet Explorer, set your browser to allow ActiveX controls.

3.1 Access from a browser

1. Start a browser (Internet Explorer).
2. Enter the IP address or host name of the Network Camera in the Location/Address field of your browser.
3. You can see a starting page. Click Live View or Setup to enter web page.

4. The network camera's **Live View** page appears in your browser.



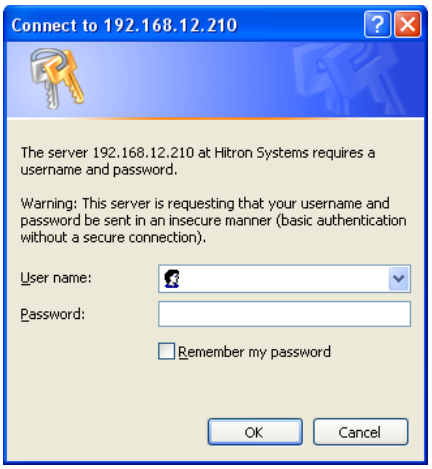
3.2. Access from the internet

Access from the internet Once connected, the Network Camera is accessible on your local network (LAN). To access the network camera from the Internet you must configure your broadband router to allow incoming data traffic to the network camera. To do this, enable the NAT-traversal feature, which will attempt to automatically configure the router to allow access to the network camera. This is enabled from Setup > System > Network > NAT.

For more information, please see "3.6.6.4 System>Network>NAT" of User's Manual.

3.3 Setting the admin password over a secure connection

To gain access to the product, the password for the default administrator user must be set. This is done in the "Admin Password" dialog, which is displayed when the network camera is accessed for the setup at the first time. Enter your admin name and password, set by the administrator.


Connect to 192.168.12.210
The server 192.168.12.210 at Hitron Systems requires a username and password.
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
User name:
Password:
Remember my password
OK
Cancel

Note: The default administrator username and password is "admin". If the password is lost, the Network Camera must be reset to the factory default settings. See "3.9 Resetting to the Factory Default Settings" for more details.

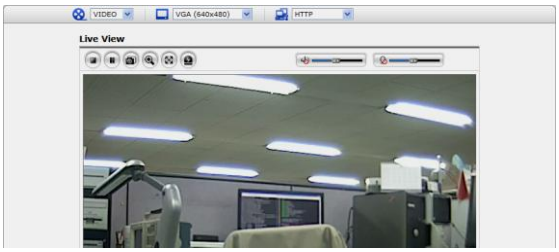
To prevent network eavesdropping when setting the admin password, this can be done via an encrypted HTTPS connection, which requires an HTTPS certificate (see note below).

To set the password via a standard HTTP connection, enter it directly in the first dialog shown below. To set the password via an encrypted HTTPS connection, see "3.6.6.4 System>Security>HTTPS" of User's Manual.

Note: HTTPS (Hypertext Transfer Protocol over SSL) is a protocol used to encrypt the traffic between web browsers and servers. The HTTPS certificate controls the encrypted exchange of information.

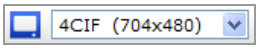
3.4 Live View Page

The live view page comes in eight screen modes: 704x480(576), 704x240(288), 352x240(288), 176x120(144), 640x480, 320x240, and 160x120. Users are allowed to select the most suitable one out of those modes. Please, adjust the mode in accordance with your PC specifications and monitoring purposes.



• General controls

The video drop-down list allows you to select a customized or pre-programmed video stream on the live view page. Stream profiles are configured under Setup > Basic Configuration > Video & Image. For more information, please see "3.6.1.3 Basic Configuration > Video & Image" of User's Manual.



The resolution drop-down list allows you to select the most suitable one out of video resolutions to be displayed on live view page.

The protocol drop-down list allows you to select which combination of protocols and methods to use depends on your viewing requirements, and on the properties of your network.

The preset drop-down list allows you to select the preset number for the PTZ camera being used. This icon is inactivated if the PTZ settings are not set.

• Control toolbar

The live viewer toolbar is available in the web browser page only. It displays the following buttons:

The Stop button stops the video stream being played. Pressing the key again toggles the start and stop. The Start button connects to the network camera or start playing a video stream.

The Pause button pause the video stream being played.

The Snapshot button takes a snapshot of the current image. The location where the image is saved can be specified.

The digital zoom activates a zoom-in or zoom-out function for video image on the live screen.

The Full Screen button causes the video image to fill the entire screen area. No other windows will be visible. Press the 'Esc' button on the computer keyboard to cancel full

screen view.

The Manual Trigger button activates a pop-up window to manually start or stop the event.

The Camera Menu button activates a pop-up window for camera menu control.

The PTZ button activates a pop-up window for Pan, Tilt and Zoom control.

Use this scale to control the volume of the speakers.

Use this scale to control the volume of the microphone.

Use this scale to control the volume of the speakers and microphones.

• Camera Menu controls

If the Network Camera has been appropriately configured, the Live View page displays the controls available for the OSD menu.

For more information, please see 3.8 Camera Menu Control" on the User's Manual.

• Pan/Tilt/Zoom controls

If the Network Camera has been appropriately configured, the Live View page displays the controls available for the PTZ(Pan Tilt Zoom) or PT device installed. The administrator can enable/disable the controls for specified users.

Please see "3.9 PTZ Control" for more information.

• Video and Audio Streams

The network camera provides several images and video stream formats. Your requirements and the properties of your network will determine the type you use.

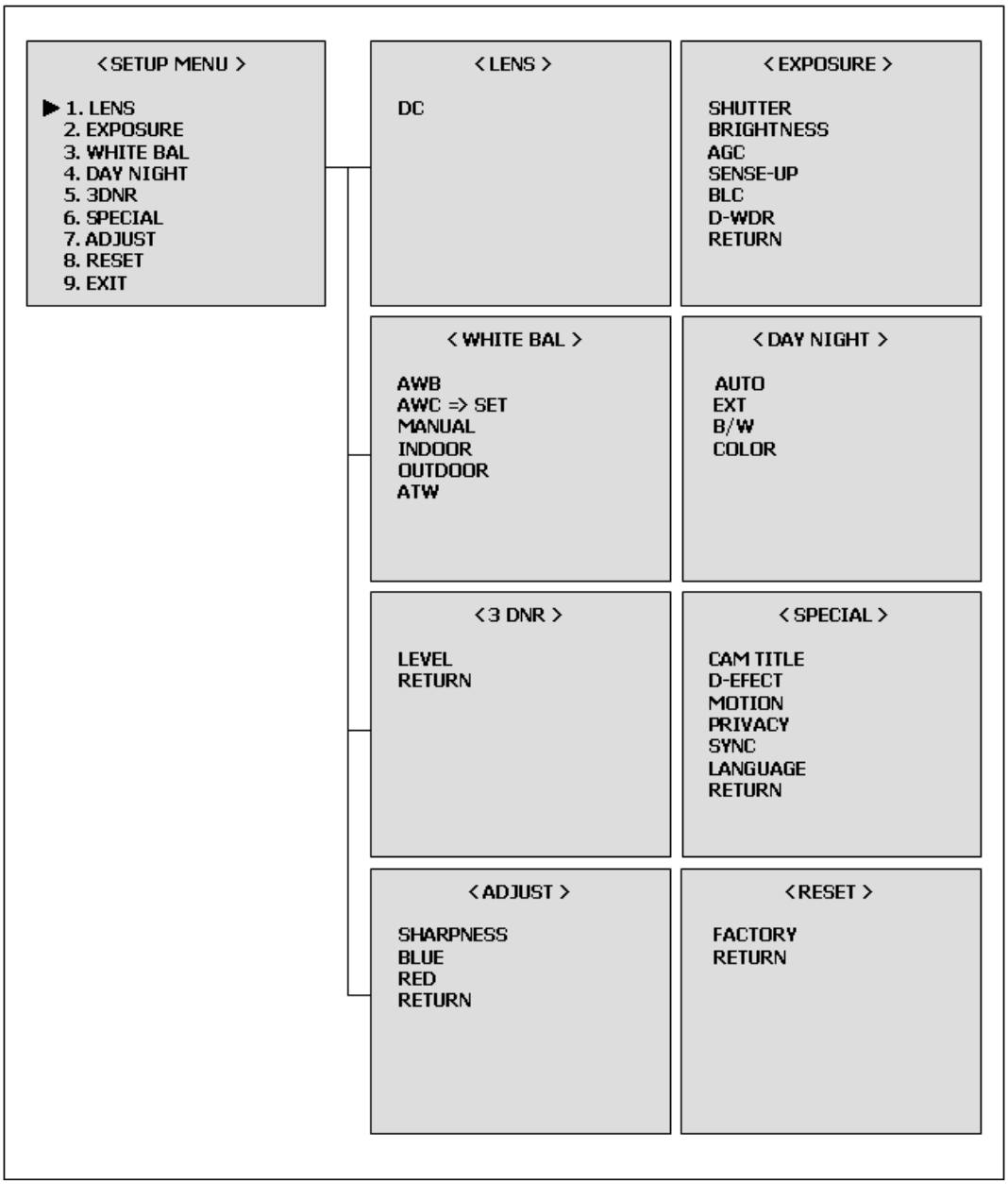
The Live View page in the network camera provides access to H.264, MPEG-4 and Motion JPEG video streams, and to the list of available video streams. Other applications and clients can also access these video streams/images directly, without going via the Live View page.

3.5 Camera Setup (Analog)

3.5.1 Settings

Settings can be made using the 5 buttons located on the back of the camera.

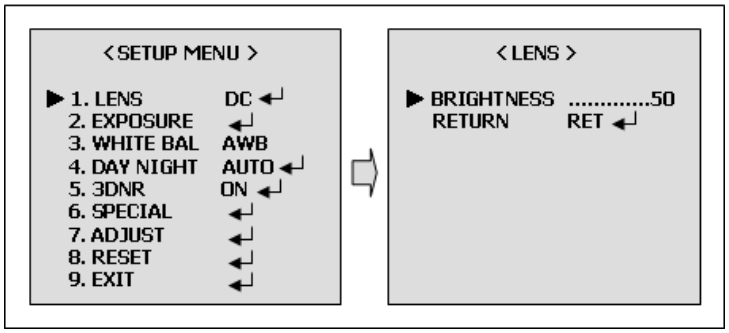
▶ **Structure of menu setup**



▶ LENS (Selection)

This function is used to adjust the brightness of the screen.

1. When the SETUP menu is displayed on the screen, please position the arrow to point to LENS by using the UP and DOWN buttons.
2. Please select the type of the lens you wish to use by pressing the LEFT or RIGHT button.



Note: The brightness of the screen can be adjusted in DC mode.
The brightness can be adjusted within the range of 0 ~ 100.
The optimum level of brightness for the user can be achieved by adjustment.

▶ EXPOSURE

The EXPOSURE menu is used to set the automatic light control method for this camera.

-. SHUTTER:
Select the shutter mode. (1/60(50), FLK~1/100,000 sec, x2~x256)
Can be changed while in shutter mode.

-. BRIGHTNESS:
Adjust BRIGHTNESS level (0~100).
Can be changed while in manual lens mode.

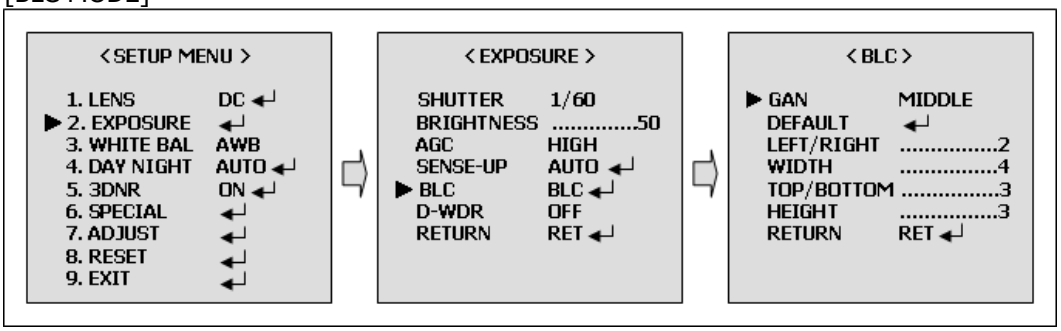
-. AGC:
Auto gain control (OFF/LOW/MIDDLE/HIGH)

-. SENSE-UP:
Use under very light condition for full color surveillance.
Select maximum Low-Shutter value. (x2 ~ x256)

-. BLC:
Sharpness subjects with backlight. (OFF/BLC/HBLC)

-. D-WDR:
Digital wide dynamic range. (OFF/INDOOR/OUTDOOR)

[BLC MODE]

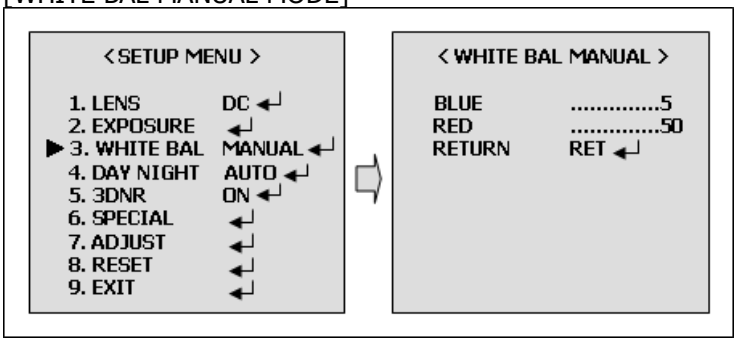


▶ WHITE BAL

The Screen color can be adjusted by using the WHITE BALANCE function.

-. AWB:
Wide range auto white balance mode.
-. AWC => SET:
Please press the ENTER button while the camera is directed at a piece of while paper to obtain the optimum state under current illumination. If the environment including the light source is changed, you have to adjust the wide balance gain.
-. MANUAL:
Manual mode. User can change R and B gain manually.
-. INDOOR:
Set the color temperature to 3200K
-. OUTDOOR:
Set the color temperature to 6300K
-. ATW:
Set the color temperature to 2500K to 9500K

[WHITE BAL MANUAL MODE]

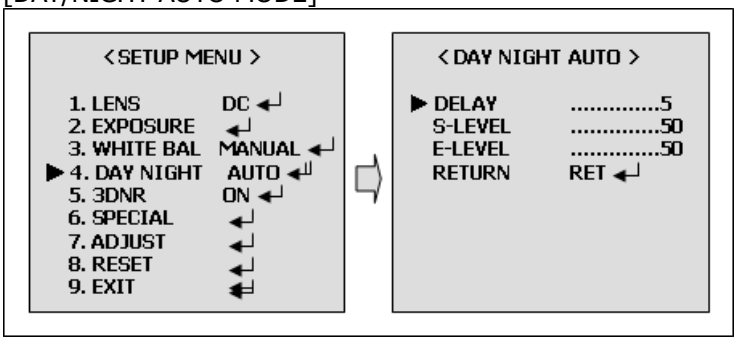


▶ DAY NIGHT

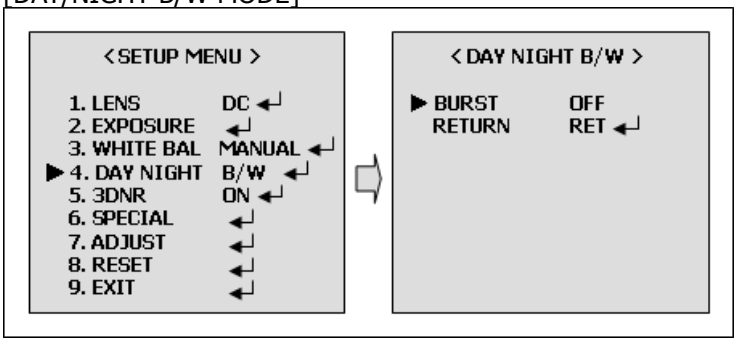
The DAY/NIGHT menu is used to configure the day and night related setting for this camera. This camera can turn the IR(Infrared) filter on or off.

-. Mode: AUTO/EXT/BW/COLOR

[DAY/NIGHT AUTO MODE]

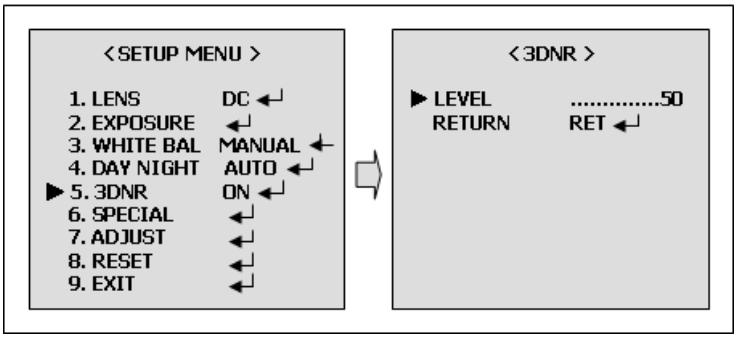


[DAY/NIGHT B/W MODE]



▶ 3DNR(Digital Noise Reduction)

You can configure the DNR(Digital Noise Reduction) related settings. If you press the Setup switch when ON is selected in 3DNR, the corresponding screen appears.



▶ SPECIAL

1. CAM TITLE

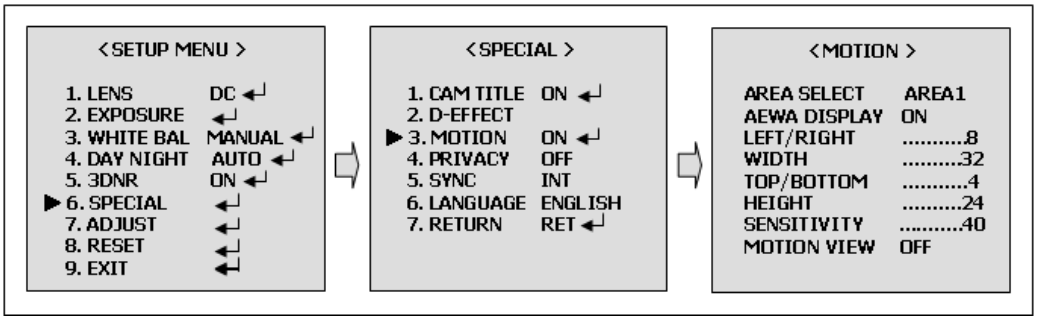
-. A	CAM TITLE	: Camera Title
-. B	0123456789ABCD EFGHIJKLMNOPQRSTUVWXYZ ▶→←↑↓()−_ ▉/=&:~,"	: Character Table
-. C	←→CLR POS END	: ←, Move to left :→, Move to right : CLR, Erase all characters : POS, Move the position of title : END, Save and End

2. D-EFFECT

-. FREEZE: Select the real or still mode.
-. MIRROR: Reverse the screen in 3 modes selection. (OFF/MIRROR/V FLIP/ROTATION)
-. D-ZOOM: D-Zoom (x2~x32) / Adjust PAN/TILT
-. GAMMA: Adjust the luminance. (0.05~1.00)
-. NEGA/POSI: Select the negative or positive mode.

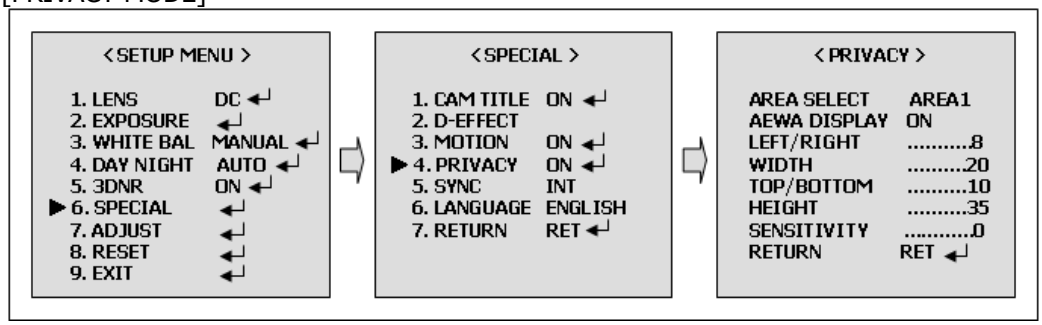
3. MOTION

-. AREA SELECT: Select MD area number.
-. AREA DISPLAY: Select MD ON/OFF.
-. LEFT/RIGHT: Adjust the location of the MD area with boundary LEFT and RIGHT.
-. WIDTH: Adjust width of MD area.
-. TOP/BOTTOM: Adjust the location of the MD area with boundary TOP and BOTTOM
-. HEIGHT: Adjust the height of MD area.
-. SENSITIVITY: Adjust sensitivity of MD area. (0~40)
-. MOTION VIEW: The screen displays with green dots. When a motion is detected in the selected area, the green dots are displayed on the screen.



4. PRIVACY
-. AREA SELECT: Select MASK area number.
-. AREA DISPLAY: Select MASK ON/OFF.
-. LEFT/RIGHT: Adjust the location of the MASK area with boundary LEFT and RIGHT.
-. WIDTH: Adjust width of MASK area.
-. TOP/BOTTOM: Adjust the location of the MASK area with boundary TOP and BOTTOM.
-. HEIGHT: Adjust the height of MASK area.
-. COLOR: Select MASK color. (0~15)

[PRIVACY MODE]



5. SYNC: Select Internal or Line Lock mode.
-. INT: This mode is necessary for using the internal synchronization.
-. L/L: This mode is necessary for the operation of multi camera because it synchronizes the camera phase by using the external signal (AC Signal).
-. PAHSE: Sync phase is adjustable in line lock mode.

6. LANGUAGE : You can change the OSD language using the LEF/RIGHT Setup switch.

▶ ADJUST

1. SHARPNESS: Can be adjusted SHARPNESS of outlines. (0~31)
2. BLUE: Adjust B-GAIN value. (0~100)
3. RED: Adjust R-GAIN value. (0~100)

▶ PRESET

1. FACTORY: Returns to the level which was set by the manufacturer.

▶ EXIT

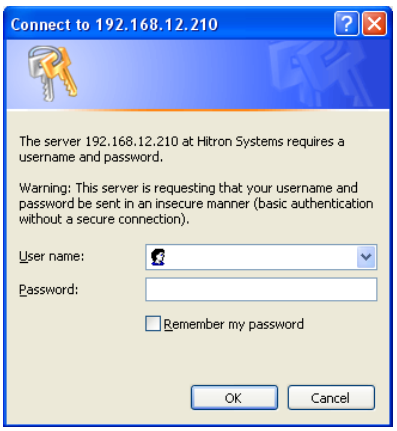
1. EXIT: Saves all the setting menus and then exits.

3.6 Network Camera Setup

This section describes how to configure the network camera, and is intended for product Administrators**,** who have unrestricted access to all the Setup tools; and Operators, who have access to the settings for Basic, Live View, Video & Image, Audio, Event, and System Configuration.

You can configure the network camera by clicking Setup in the top right-hand corner of the Live View page. Click on this page to access the online help that explains the setup tools.

When accessing the Network Camera for the first time, the "Admin Password" dialog appears. Enter your admin name and password, set by the administrator.

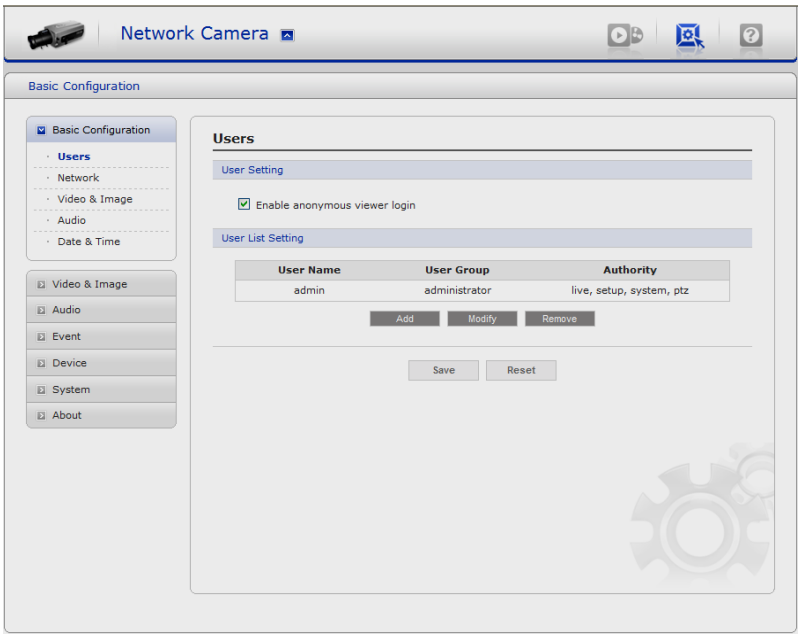

Connect to 192.168.12.210
The server 192.168.12.210 at Hitron Systems requires a username and password.
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
User name:
Password:
Remember my password
OK
Cancel

Note: If the password is lost, the Network Camera must be reset to the factory default settings. See "3.9 Resetting to the Factory Default Settings

3.6.1 Basic Configuration

3.6.1.1 Users

User access control is enabled by default. An administrator can set up other users, by giving these user names and passwords. It is also possible to allow anonymous viewer login, which means that anybody may access the Live View page, as described below:



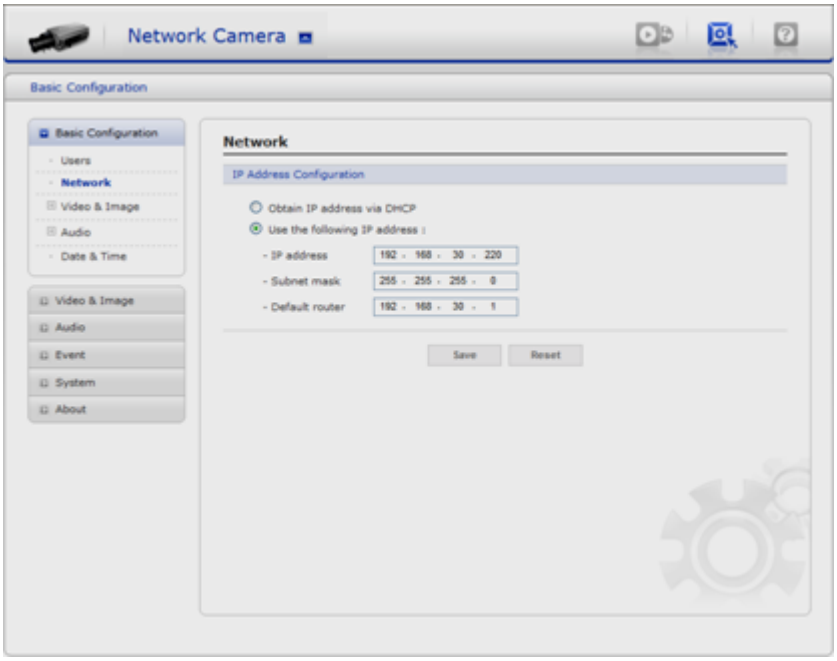
The **user list** displays the authorized users and user groups (levels):

User Group	Authority
Guest	Provides the lowest level of access, which only allows access to the Live View page.
Operator	An operator can view the Live View page, create and modify events, and adjust certain other settings. Operators have no access to System Options.
Administrator	An administrator has unrestricted access to the Setup tools and can determine the registration of all other users.

• Enable anonymous viewer login: Check the box to use the webcasting features. Refer to "3.6.2 Video & Image" for more details.

3.6.1.2 Network

The network camera supports both IP version 4 and IP version 6. Both versions may be enabled simultaneously, and at least one version must always be enabled. When using IPv4, the IP address for the network camera can be set automatically via DHCP, or a static IP address can be set manually. If IPv6 is enabled, the network camera receive an IP address according to the configuration in the network router. There is also the option of using the Internet Dynamic DNS Service. For more information on setting the Network, please see Setup> System>Security>Network.



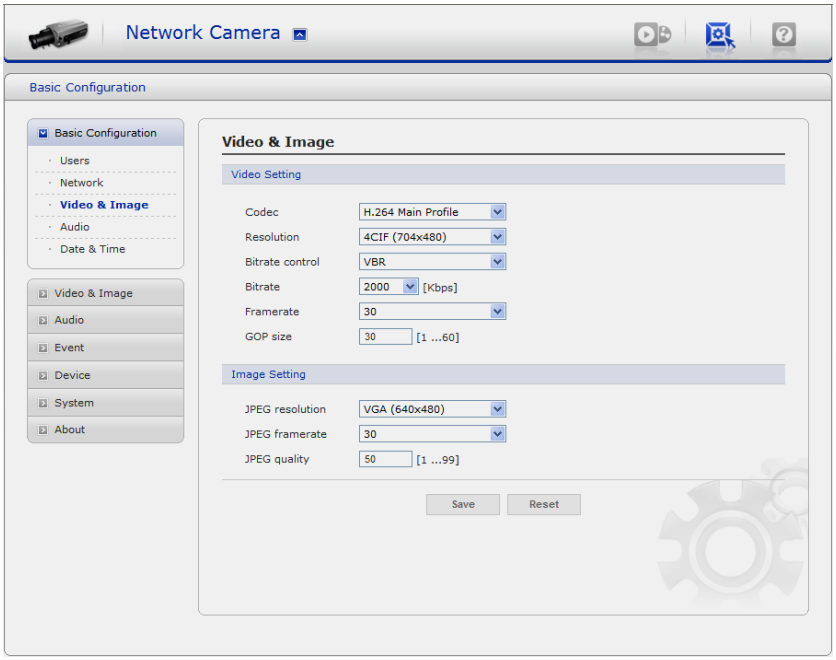
• Obtain IP address via DHCP - Dynamic Host Configuration Protocol (DHCP) is a protocol that lets network administrators centrally manage and automate the assignment of IP addresses on a network. DHCP is enabled by default. Although a DHCP server is mostly used to set an IP address dynamically, it is also possible to use it to set a static, known IP address for a particular MAC address.

• Use the following IP address - To use a static IP address for the Network Camera, check the radio button and then make the following settings:
  -. IP address - Specify a unique IP address for your Network Camera.
  -. Subnet mask - Specify the mask for the subnet the Network Camera is located on.
  -. Default router - Specify the IP address of the default router (gateway) used for connecting devices attached to different networks and network segments.

Notes:

1. DHCP should only be enabled if using dynamic IP address notification, or if your DHCP server can update a DNS server, which then allows you to access the Network Camera by name (host name). If DHCP is enabled and you cannot access the unit, you may have to reset it to the factory default settings and then perform the installation again.
2. The ARP/Ping service is automatically disabled two minutes after the unit is started, or as soon as an IP address is set.
3. Pinging the unit is still possible when this service is disabled.

3.6.1.3 Video & Image



• Video Setting

-. Codec

The codec settings are separated into MPEG4 and H.264.

H.264 is also known as MPEG-4 Part 10. This is the new generation compression standard for digital video. This function offers higher video resolution than Motion JPEG or MPEG-4 at the same bit rate and bandwidth, or the same quality video at a lower bit rate.

-. Profile

There are 4 pre-programmed stream profiles available for quick set-up.

Choose the form of video encoding you wish to use from the drop-down list:

* H.264 MP(Main Profile):
  Primarily for low-cost applications that requires additional error robustness, this profile is used rarely in videoconferencing and mobile applications, it does add additional error resilience tools to the Constrained Baseline Profile. The importance of this profile is fading after the Constrained Baseline Profile has been defined.

* H.264 BP(Base Profile):
  Originally intended as the mainstream consumer profile for broadcast and storage applications, the importance of this profile faded when the High profile was developed for those applications.

* MPEG4 SP(Simple Profile):
  Mostly aimed for use in situations where low bit rate and low resolution are mandated by other conditions of the applications, like network bandwidth, device size etc.

* MPEG4 ASP(Advanced Simple Profile):
  Its notable technical features relative to the Simple Profile, which is roughly similar to H.263, including "MPEG"-style quantization, interlaced video, B pictures (also known as B Frames), Quarter Pixel motion compensation (Qpel), Global motion compensation (GMC).

-. Resolution

It enables users to determine a basic screen size when having an access through the Web Browser or PC program. The screen size control comes in seven modes like 4CIF(704x480), 2CIF(704x240), CIF (352x240), QCIF(176x120), VGA(640x480), QVGA(320x240), and QQVGA(160x120). Users can reset the selected screen size anytime while monitoring the screen on a real-time basis.

-. Bitrate control

Limiting the maximum bit rate helps control the bandwidth used by the H.264 or MPEG-4 video stream. Leaving the Maximum bit rate as unlimited maintains consistently good image quality but increases bandwidth usage when there is more activity in the image. Limiting the bit rate to a defined value prevents excessive bandwidth usage, but images are lost when the limit is exceeded.

Note that the maximum bit rate can be used for both variable and constant bit rates.

The bit rate can be set as Variable Bit Rate (VBR) or Constant Bit Rate (CBR). VBR adjusts the bit rate according to the image complexity, using up bandwidth for increased activity in the image, and less for lower activity in the monitored area.

CBR allows you to set a fixed target bitrate that consumes a predictable amount of bandwidth. As the bit rate would usually need to increase for increased image activity, but in this case cannot, the frame rate and image quality are affected negatively. To partly compensate for this, it is possible to prioritize either the frame rate or the image quality whenever the bit rate needs to be increased. Not setting a priority means the frame rate and image quality are equally affected.

-. Compression

When it is necessary to adjust a smooth transmission status according to network situations, users can increase the compressibility to carry out the network transmission stably. On the other hand, when it is necessary to maintain a detailed monitoring screen by enhancing the image quality, users can do so by decreasing the compressibility. In ease case, please adjust this function according to the network status and monitoring purposes. The default is 2000(Kbps).

-. Frame rate

Upon the real-time play, users should select a frame refresh rate per second. If the rate is high, the image will become smooth. On the other hand, if the rate is low, the image will not be natural but it can reduce a network load.

-. GOP size

Select the GOP(Group of Picture) size. If users want to have a high quality of fast image one by one, please decrease the value. For the purpose of general monitoring, please do not change a basic value. Such act may cause a problem to the system performance. For the details of GOP setting, please contact the service center.

• Image Setting

Sometimes the image size is large due to low light or complex scenery. Adjusting the frame rate and quality helps to control the bandwidth and storage used by the Motion JPEG video stream in these situations. Limiting the frame rate and quality optimizes bandwidth and storage usage, but may give poor image quality. To prevent increased bandwidth and storage usage, the Resolution, Frame rate, and Frame Quality should be set to an optimal value.

-. JPEG resolution

Same as the video settings.

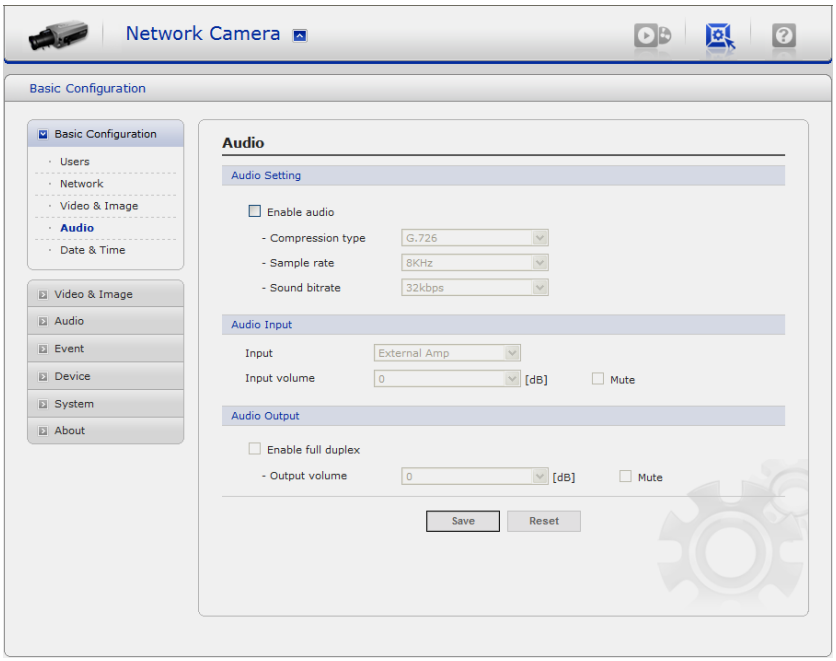
-. JPEG frame rate

Same as the video settings.

-. JPEG quality
Select the picture quality. If users want to have a high quality of fast image one by one, please decrease the value. For the purpose of general monitoring, please do not change a basic value. Such act may cause a problem to the system performance.

When satisfied with the settings, click **Save**, or click **Reset** to revert to previously saved settings.

3.6.1.4 Audio



The Network Camera can transmit audio to other clients using an external microphone and can play audio received from other clients by attaching a speaker. The Setup page has an additional menu item called **Audio**, which allows different audio configurations, such as, full duplex, and simplex.

• Audio Setting

-. Enable audio
Check the box to enable audio in the video stream.

-. Compression type
Select the desired audio Compression format, G726.

-. Sample rate
Select the required Sample rate (number of times per second the sound is sampled). The higher the sample rate, the better the audio quality and the greater the bandwidth required.

-. Sound bitrate
Depending on the selected encoding, set the desired audio quality (bitrate). The settings affect the available bandwidth and the required audio quality.

• Audio Input
Audio from an external line source can be connected to the terminal I/O of the network camera.

-. Input volume
If there are problems with the sound input being too low or high, it is possible to adjust the input gain for the microphone attached to the network camera.

• Audio Output

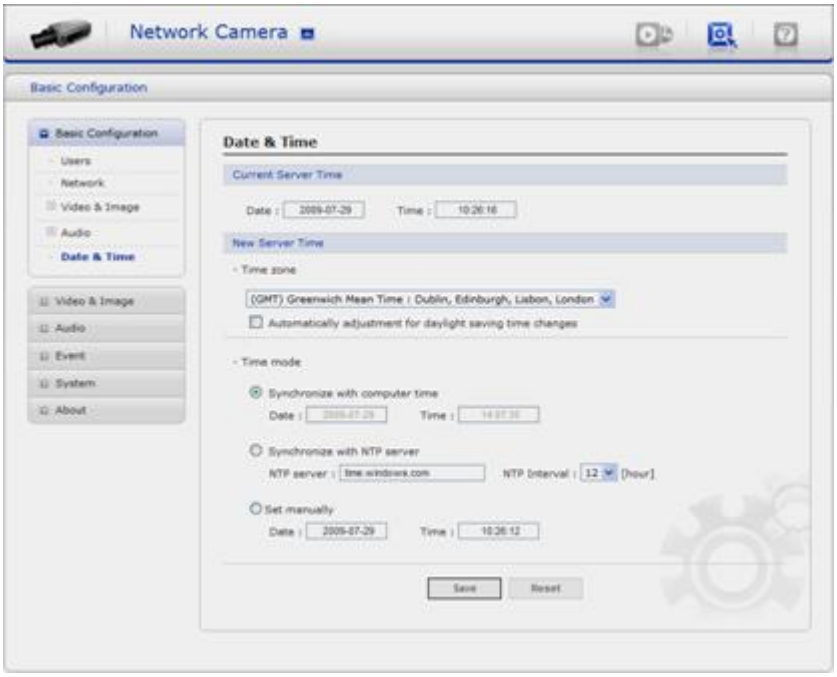
-. Enable full duplex
Check the box to enable Full Duplex mode. It means that you can transmit and receive audio (talk and listen) at the same time, without having to use any of the controls. This is just like having a telephone conversation.
This mode requires that the client PC has a sound card with support for full-duplex audio.

Uncheck the box enable Simplex mode. The simplex mode only transmits audio from the network camera to any web client. It does not receive audio from other web clients.

-. Output volume
If the sound from the speaker is too low or high it is possible to adjust the output gain for the active speaker attached to the network camera.

When satisfied with the settings, click **Save**, or click **Reset** to revert to previously saved settings.

3.6.1.5 Date & Time



• Current Server Time

It displays the current date and time (24h clock). The time can be displayed in 12h clock format in the overlay (see below).

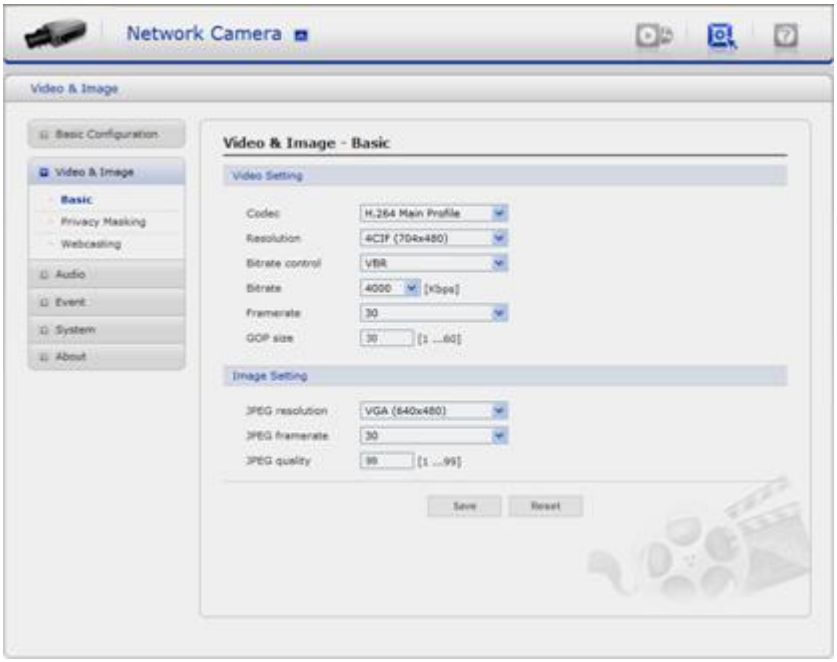
• New Server Time

Select your time zone from the drop-down list. If you want the server clock to automatically adjust for daylight savings time, select the "Automatically adjustment for daylight saving time changes".

From the **Time Mode** section, select the preferred method to use for setting the time:
-. Synchronize with computer time - sets the time from the clock on your computer.
-. Synchronize with NTP Server - the network camera will obtain the time from an NTP server every 60 minutes.
-. Set manually - this option allows you to manually set the time and date.

3.6.2 Video & Image

▼ Basic

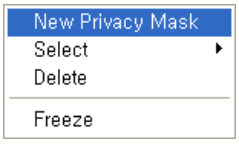


Refer to "3.6.1.3 Video & Image" for more details.

▼ Privacy Masking - Basic

The privacy masking function allows you to mask parts of the video image to be transmitted. You can set up to eight privacy masks and the color of privacy masks is black.

The privacy masks are configured by Mask windows. Each window can be selected by clicking with the mouse. It is also possible to **resize or delete, or move** the window, by selecting the appropriate window at the mouse menu on the video screen.



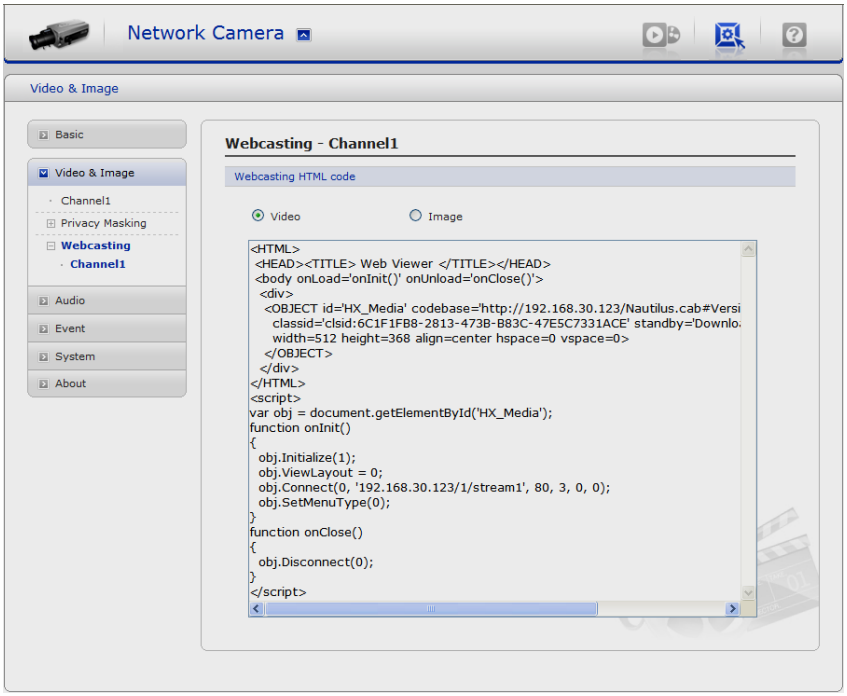
To create a mask window, follow steps:

1. Click the right button of mouse to see the mouse menu.
2. Select New Privacy Mask in the mouse menu.
3. Click and drag mouse to designate a mask window area.

You can also modify or delete a mask window index. Select an index in the list and then, modify items or delete button. Select "Enable" to activate the privacy masking function.

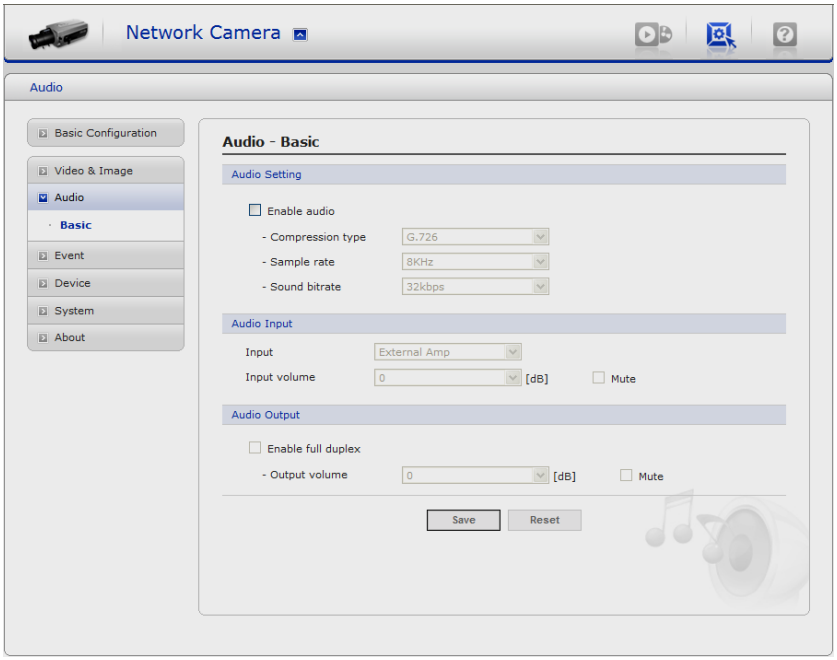
▼ Webcasting – Channel1

The network camera can stream live video to a website. Copy HTML code generated on the screen and paste it in page code of the website you want to display live video.



Note: To use webcasting service, the Enable Anonymous viewer login option must be checked. Refer to "3.6.1.1 Users" for more details.

3.6.3 Audio

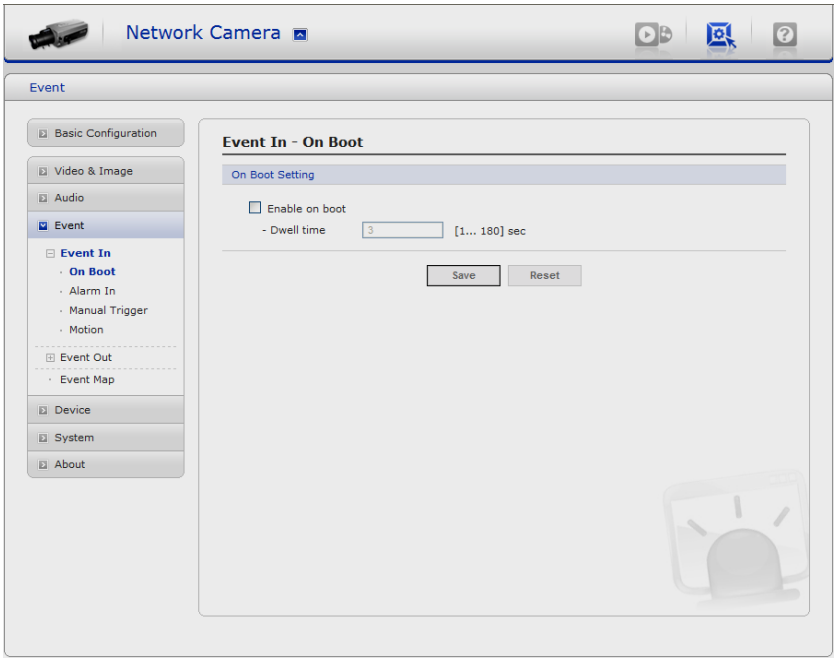


Refer to "3.5.1.4 Audio" for more details.

3.6.4 Event

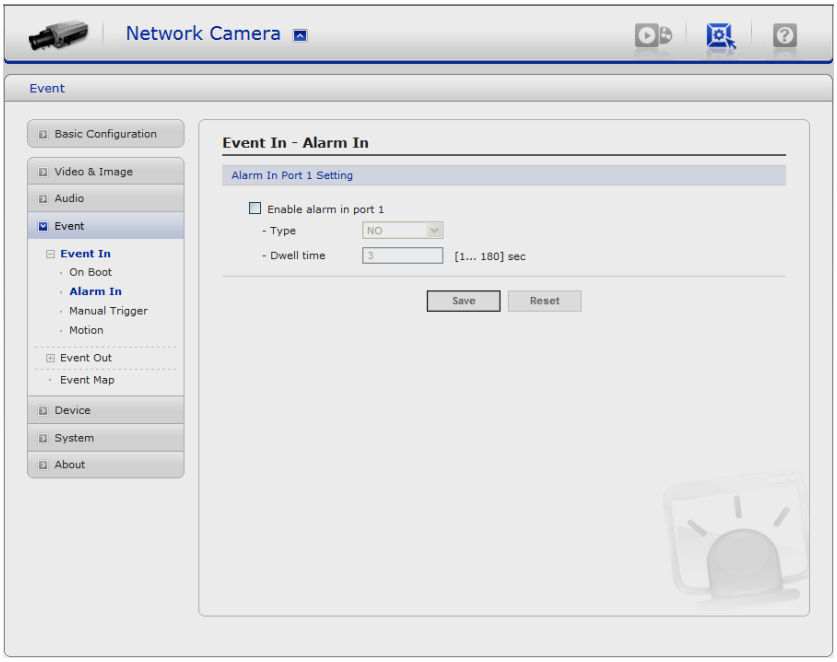
3.6.4.1 Event-In

▼ On Boot



This is used to trigger the event every time the Network Camera starts. Select "Enable" to activate the On Boot event.

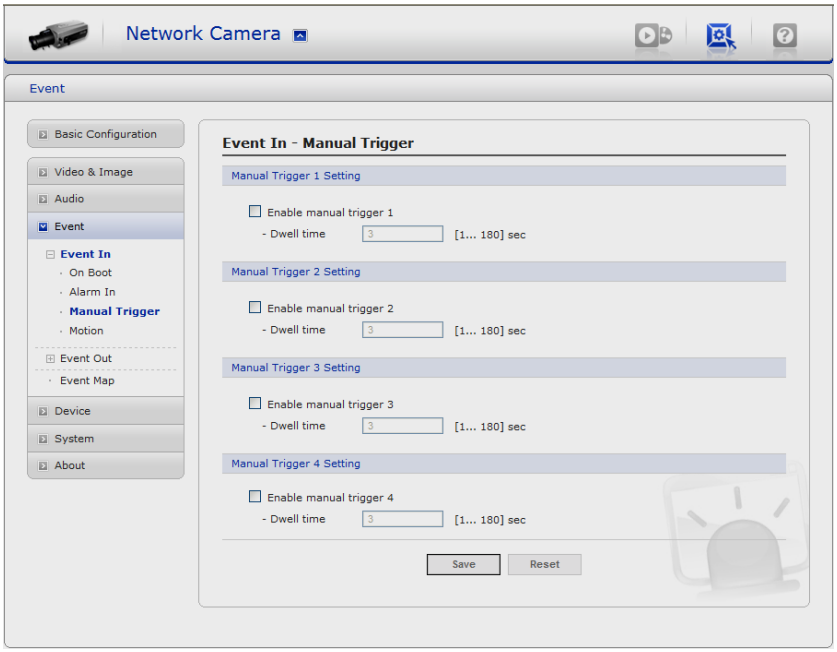
▼ Alarm In



Select "Enable" to activate the alarm event. The network camera supports 1 alarm input port.

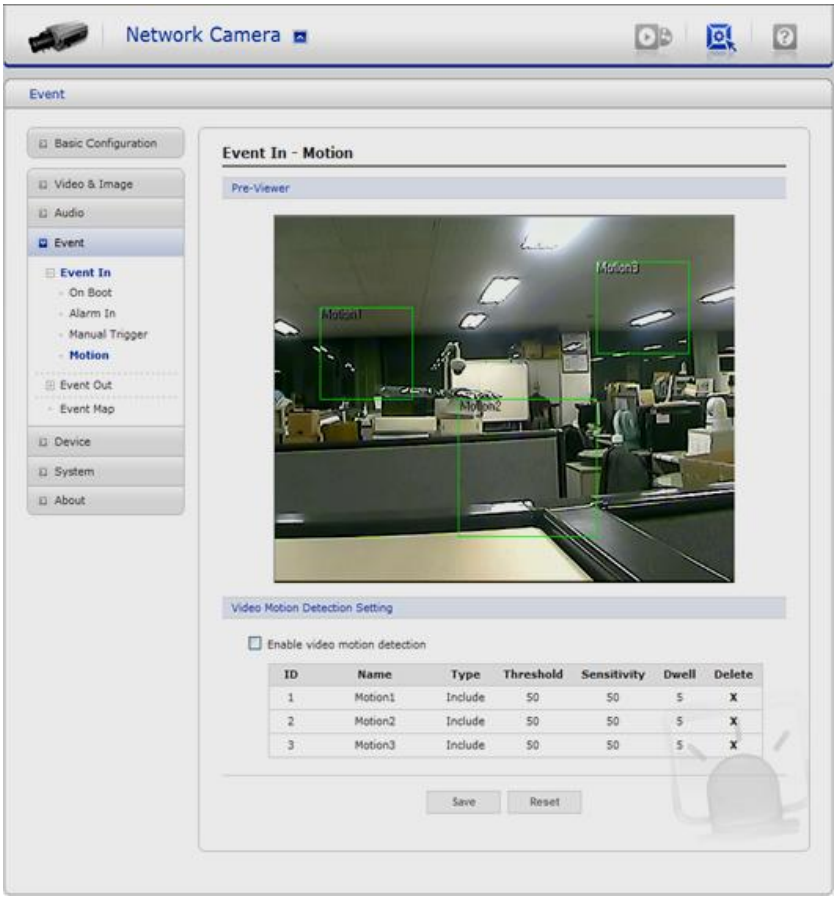
-. Type - Choose the type of alarm you wish to use from the drop-down list.
-. Dwell Time - Set the dwell time of an event lasts for the specified dwell time from the point of detection of an alarm input.

▼ Manual Trigger



This option makes use of the manual trigger button provided on the live view page, which is used to start or stop the event type manually. Alternatively the event can be triggered via the product's API (Application Programming Interface).

▼ Motion



Motion detection is used to generate an alarm whenever movement occurs (or stops) in the video image. A total of 8 Motion and/or Mask windows can be created and configured.

Motion is detected in defined **Motion** windows, which are placed in the video image to target specific areas. Movement in the areas outside the motion windows will be ignored. If part of a motion window needs to be masked, this can be configured in a **Mask** window.

• Pre-Viewer
Motion detection windows are configured by Motion or Mask windows. Each window can be selected by clicking with the mouse. It is also possible to **resize or delete, or move** the window, by selecting the appropriate window at the mouse menu on the video screen.

To create a motion or mask window, follow steps:

1. Click the right button of mouse to see the mouse menu.
2. Select New Motion (or Mask) Window in the mouse menu.
3. Click and drag mouse to designate a motion area.

• Motion Detection Setting

The behavior for each window is defined by adjusting the Threshold and Sensitivity, as described below.

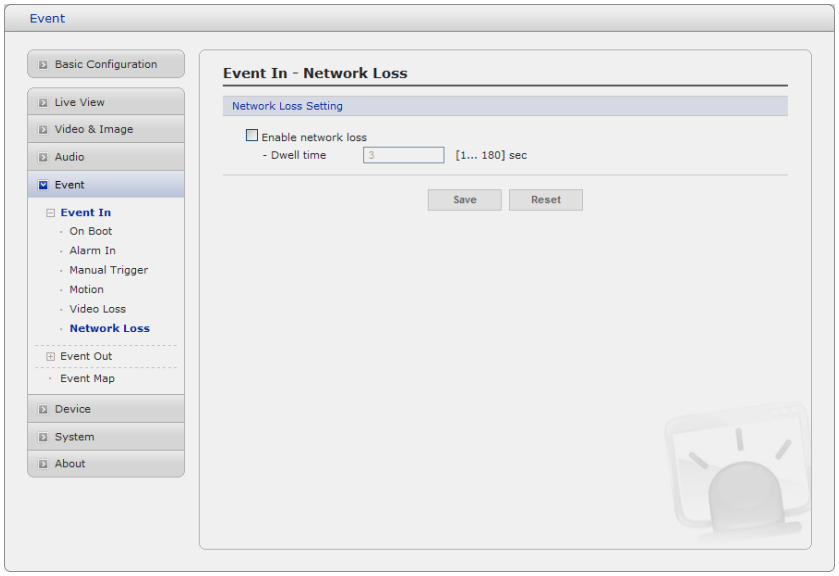
A motion index is a set of parameters describing Window Name, Type, Threshold, Sensitivity, and Dwell Time. Window Types is one of Motion and Mask windows.

-. Threshold - Sets up the threshold for the motion detection.
-. Sensitivity - Sets up the sensitivity for the motion detection.
-. Dwell Time - Set the hold time an event lasts for the specified hold time from the point of detection of a motion.

You can also modify or delete a motion index. Select an index and then, click the Modify or Delete button.

Select "Enable" to activate the motion window.

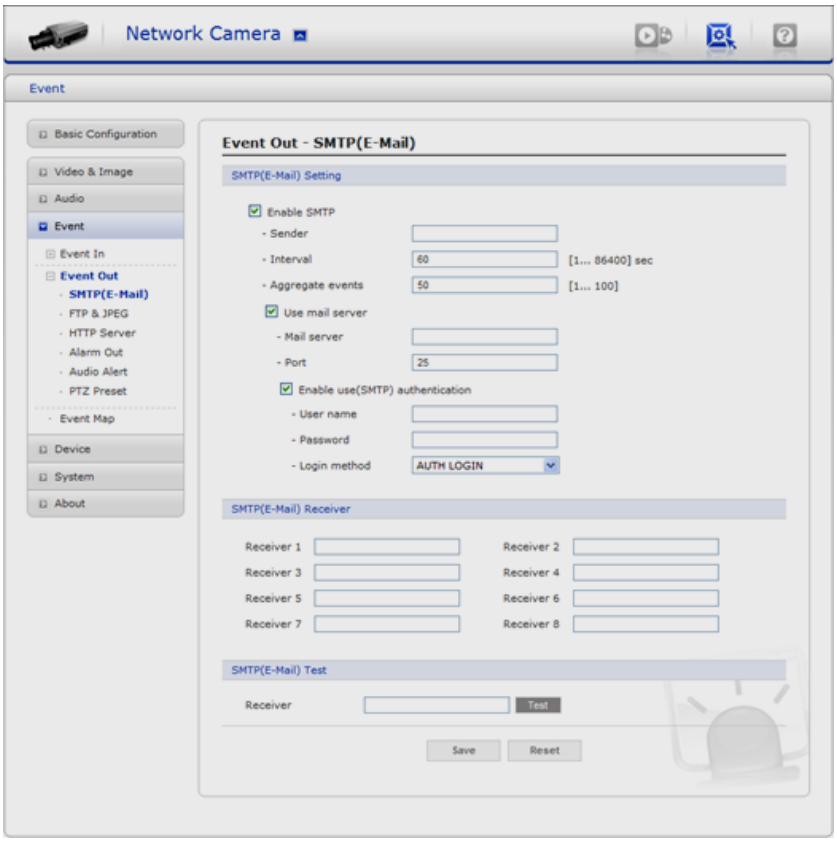
▼ Network Loss



This is used to trigger the event every time the network connection is failed. Select "Enable" to activate the Network Loss event.

3.6.4.2 Event-Out

▼ SMTP(E-Mail)



The Network Camera can be configured to send event and error email messages via SMTP (Simple Mail Transfer Protocol).

• SMTP(E-Mail) Setting

Select "Enable" to activate the SMTP operation.

-. Mail Server / Port - Enter the host names (or IP addresses) and port numbers for your mail server in the fields provided, to enable the sending of notifications and image email messages from the camera to predefined addresses via SMTP.

-. Sender – Enter the email address to be used as the sender for all messages sent by the Network Camera.

-. Interval - Represents the frequency of the email notification when an event occurs.

-. Aggregate events - Shows the maximum number of emails sent within each interval.

If your mail server requires authentication, check the box for Use authentication to log in to this server and enter the necessary information.

-. User Name / Password - Enter the User Name and Password as provided by your network administrator or ISP (Internet Service Provider).

To ensure that the login procedure is performed as securely as possible when using SMTP authentication, you must define the weakest authentication method allowed.

-. Login Method - Set the Weakest method allowed to the highest/safest method supported by the mail server. The most secure method is listed in the drop-down list: Login / Plain

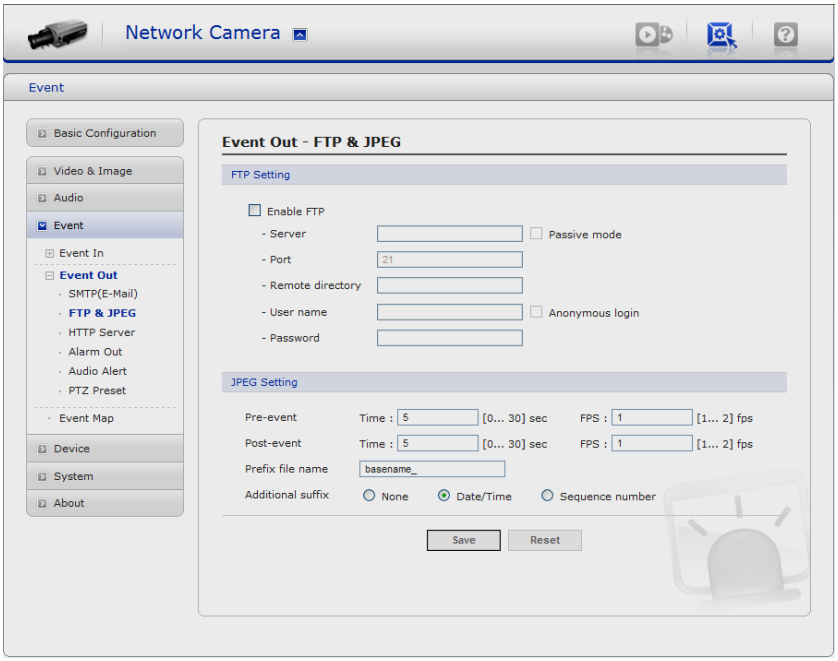
• SMTP(E-Mail) Receiver

-. Receiver - Enter an email address. You can also register the e-mail address of recipients up to 8.

• SMTP(E-Mail) Test

-. Receiver - Enter an email address and click the Test button to test that the mail servers are functioning and that the email address is valid.

▼ FTP & JPEG



When the network camera detects an event, it can record and save images to an FTP server. Images can be sent as e-mail attachments. Check the box to enable the service.

• FTP Setting

-. Server - Enter the server's IP address or host name. Note that a DNS server must be specified in the TCP/IP network settings if using a host name.

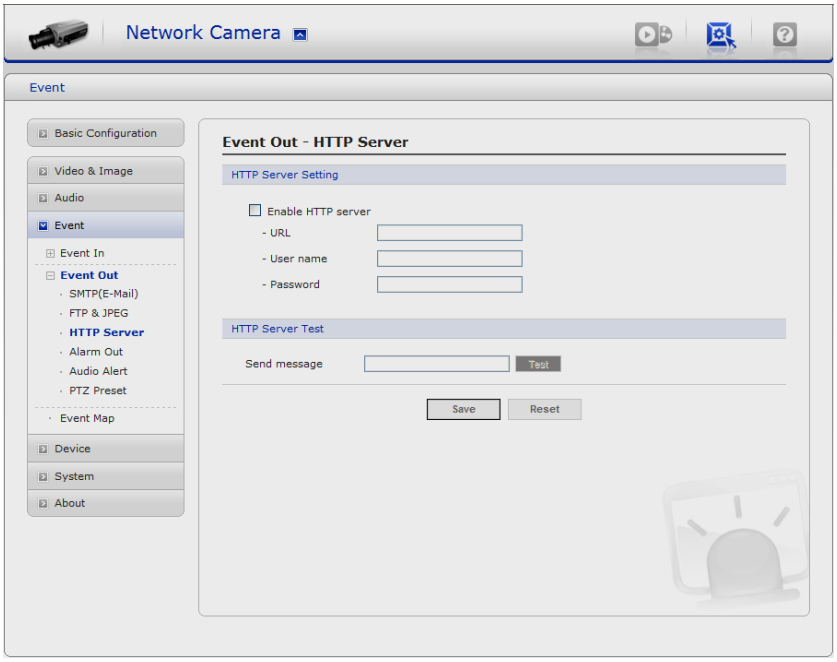
-. Port - Enter the port number used by the FTP server. The default is 21.

-. Use passive mode - Under normal circumstances the Network Camera simply requests the target FTP server to open the data connection. Checking this box issues a PASV command to the FTP server and establishes a passive FTP connection; whereby the Network Camera actively initiates both the FTP control and data connections to the target server. This is normally desirable if there is a firewall between the camera and the target FTP server.

-. Remote directory - Specify the path to the directory where the uploaded images will be stored. If this directory does not already exist on the FTP server, there will be an error message when uploading.
-. User name / Password - Provide your log-in information.

• JPEG Setting
-. Pre-event - A pre-event buffer contains images from the time immediately preceding the event trigger. These are stored internally in the server. This buffer can be very useful when checking to see what happened to cause the event trigger.
Check the box to enable the pre-trigger buffer, enter the desired total length in seconds, minutes or hours, and specify the required image frequency.
-. Post-event - This function is the counterpart to the pre-trigger buffer described above and contains images from the time immediately after the trigger. Configure as for pre-event.
-. Prefix file name - This name will be used for all the image files saved. If suffixes are also used, the file name will take the form <prefix>.<suffix>.<extension>
-. Additional suffix - Add either a date/time suffix or, a sequence number - with or without a maximum value

▼ HTTP Server

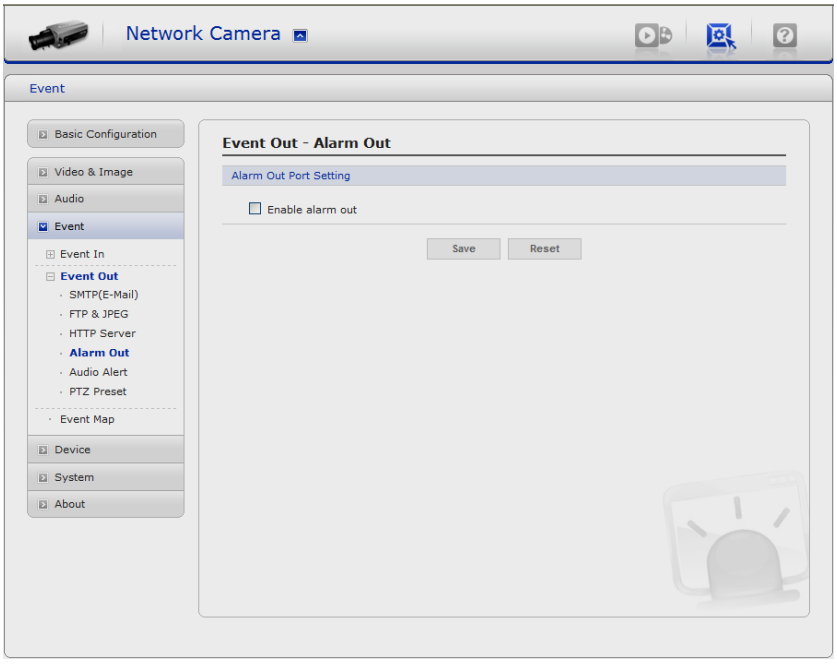


When the network camera detects an event, HTTP Server is used to receive uploaded image files and/or notification messages. Check the box to enable the service.

• HTTP Server Setting
-. Name - The name of the HTTP event server. Use a descriptive name.
-. URL - The network address to the server and the script that will handle the request.
For example: http://192.168.12.244/cgi-bin/upload.cgi
-. User name/Password - Provide your log-in information.

• HTTP Server Test
When the setup is complete, the connection can be tested by clicking the Test button.

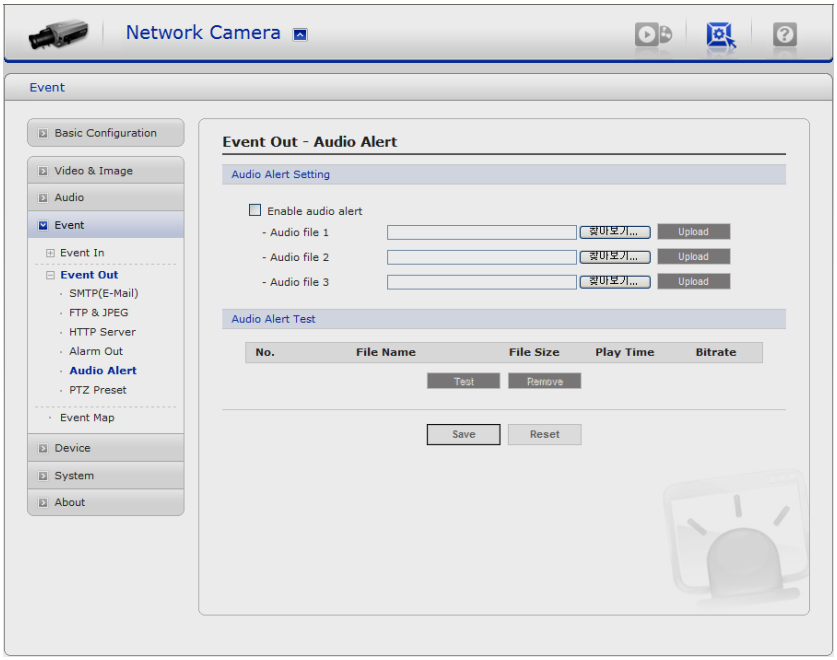
▼ Alarm Out



When the network camera detects an event, it can control external equipment connected to its alarm output port. Check the box to enable and then select either:

-. Enable – When you select "Enable alarm out", the output will be activated for as long as the event is active.

▼ Audio Alert



When the network camera detects an event, it can output a predefined audio data to external speaker. Check the box to enable the service.

• Audio Alert Setting

To use the audio alert with the network camera, an audio data file made by user must be uploaded from your PC. Provide the path to the file directly, or use the **Browse** button to locate it. Then click the **Upload** button.

An audio file for Audio Alert can be made by Audio Recorder tool in the NCTitanium software.

• Audio Alert Test

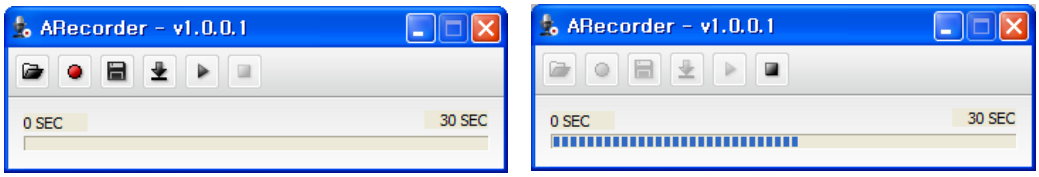
When the setup is complete, the audio output can be tested by clicking the Test button. To remove an audio file, select index and click the **Remove** button.

Note: For a proper operation of Audio Alert, you must enable "full duplex" in Audio setting page.

Audio Recorder

To use Audio Recorder tool to make an audio file for Audio Alert function, you must install the NCTitanium on the installation CD at first.

Start the ARecorder program (All Programs>NCTitanium>Tools>ARecorder) in your PC and the main window will be displayed as below.



The description of each button in the ARecorder window follows.

Open: Open an audio file.

Capture: Capture audio from the microphone in your PC.

Save: Save a captured file to your PC. (PCM format)

Encode: Encode a current capture file or opened PCM file to G.711 file for Audio Alert.

Play: Play a current audio file.

Stop: Stop playing audio.

Procedures to make an audio file in G.711 format for Audio Alert.

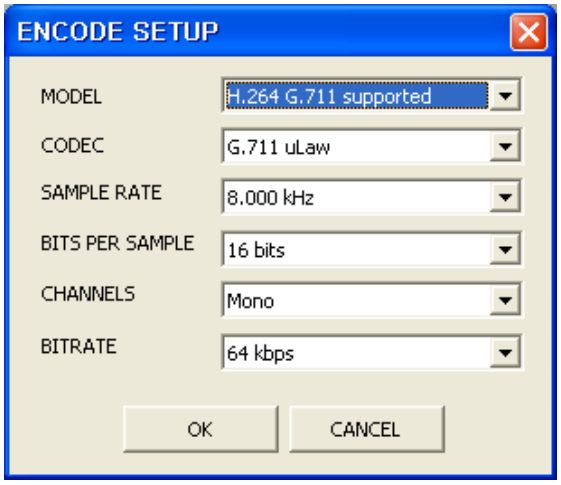
1. Connect the microphone in your PC.

2. Click the Capture button and talk to the microphone to record the audio or voice. You can record up to 30 seconds. Click the Stop button to stop on capturing.

3. Click the Save button and then set the file name to save a current capture file with PCM format.

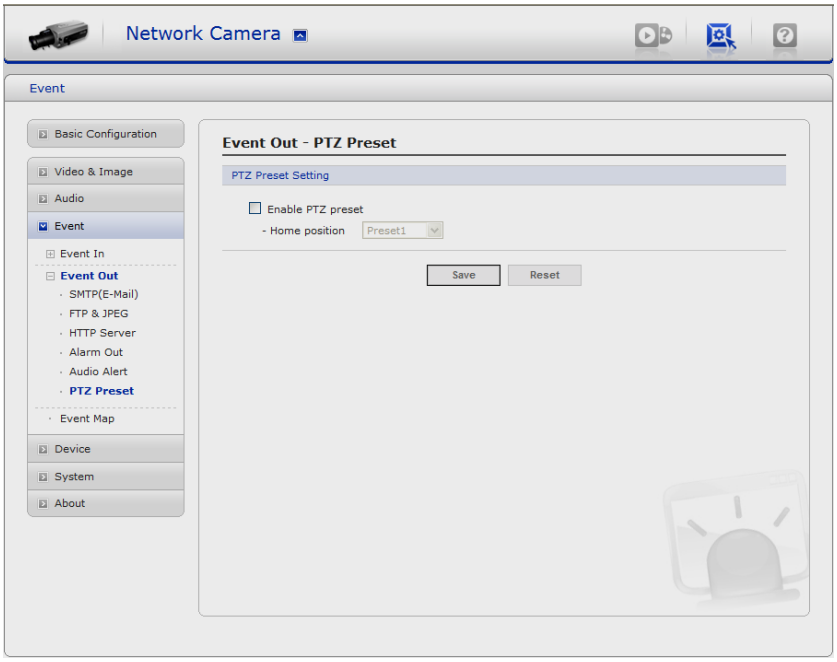
   If you don't need to make any PCM file, skip this step and then go to the step 5 directly.
4. Click the Open button and then select the file name to open an audio file in PCM format.

5. Click the Encode button to encode a current audio file to G.711 format for Audio Alert. Set the file name and encode parameters.



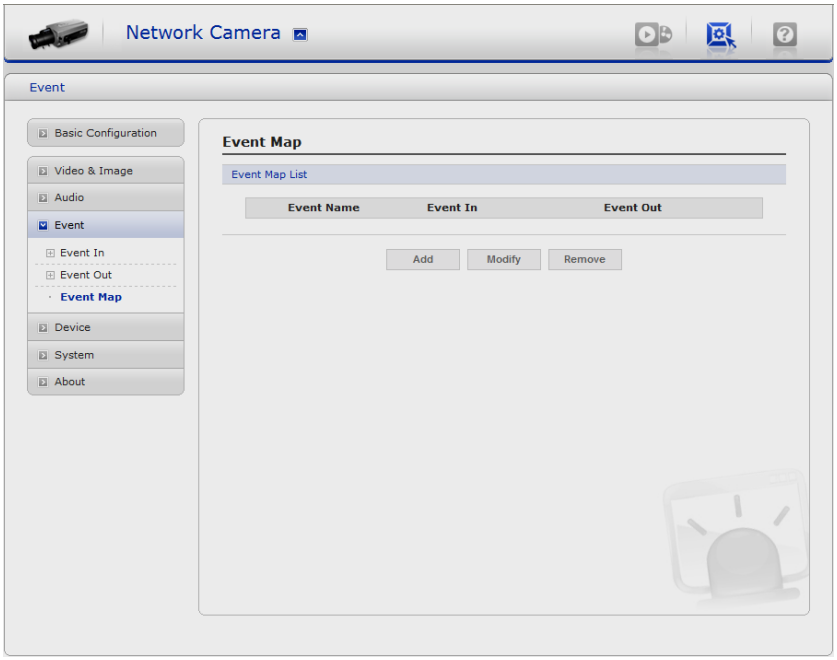
Caution: All parameters must be synchronized with ones in audio setting page of network devices for a proper operation.

▼ PTZ Preset



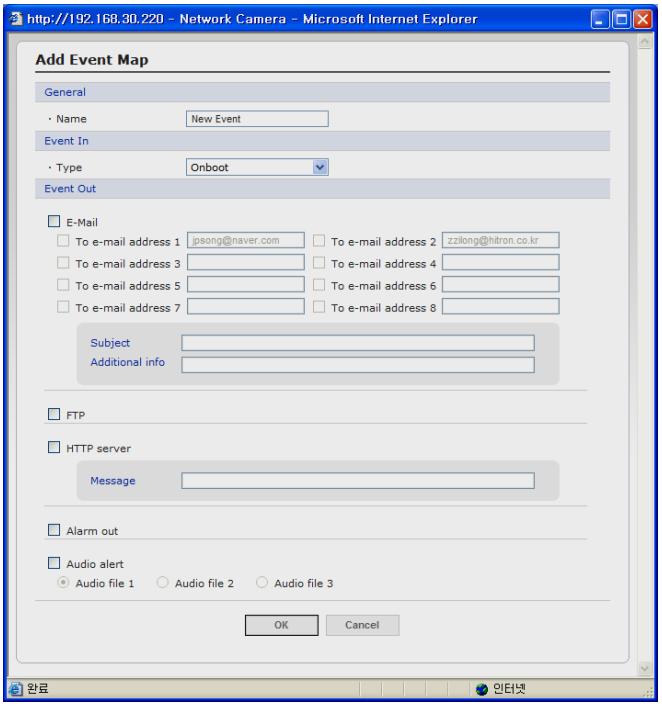
When the network camera detects an event, you can make a PTZ camera connected to its RS485 port to move to a predefined preset position. Check the box to enable the service and return to the Home position once the event has ended.

3.6.4.3 Event Map



The event map allows you to change the settings and establish a schedule for each event trigger from the Network Camera. You can register the event map up to max. 15.

Click Add button to make a new event map and you can see a popup window as below.



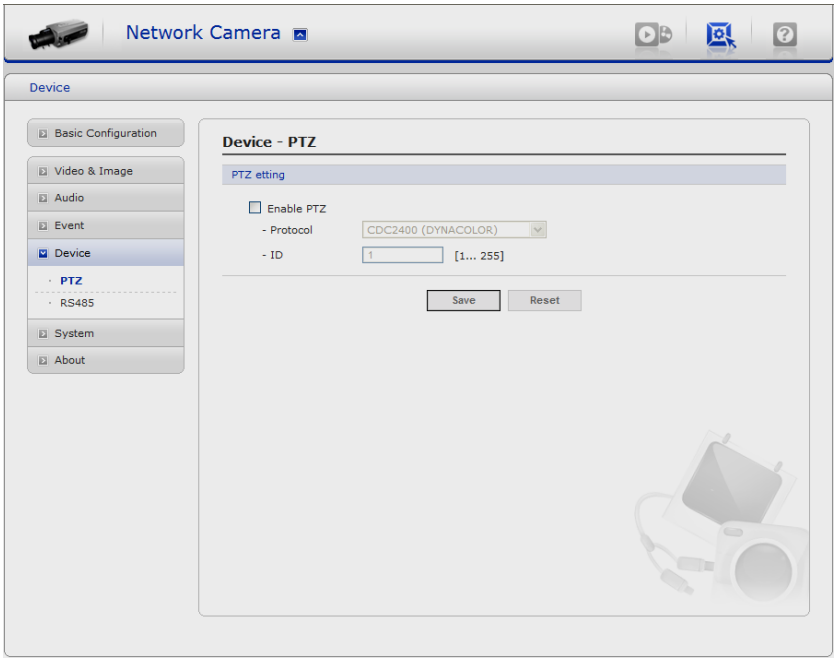
• General
Enter the name for a new event map.

• Event In
Select an event type in the drop down list.

• Event Out
-. E-mail: Select email addresses you want to send via email that an event has occurred.
-. FTP: Select checkbox beside FTP to record and saves images to an FTP server when an event has occurred.
-. HTTP Server: It sends notification messages to an HTTP server that listens for these. The destination server must first be configured on the Event In page. Enter a message you want to send.
-. Audio Alert: Select a Audio alert file the Network camera output when audio alert event triggered. The Audio alert file must first be configured on the Event In page.

3.6.5 Device

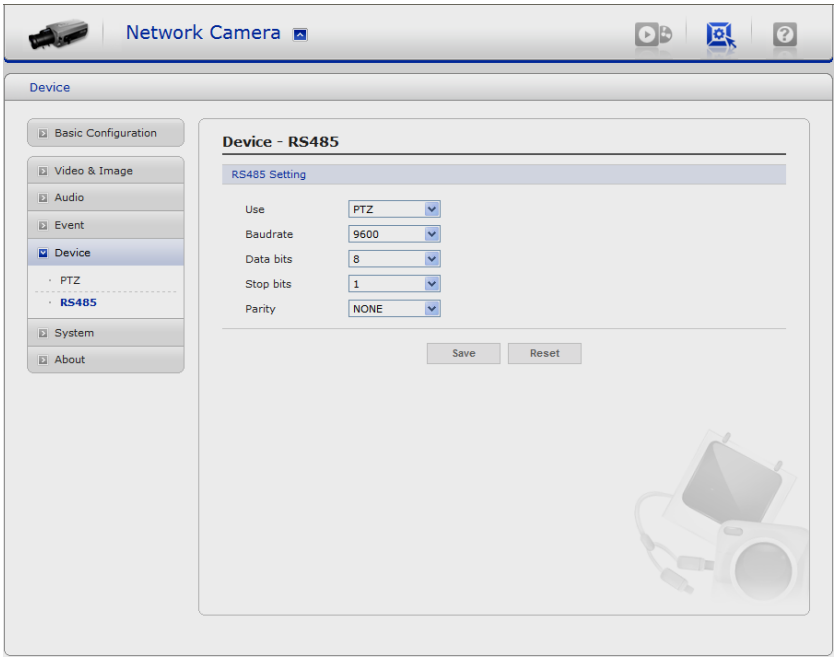
▼ PTZ



The Network Camera supports several PTZ devices. Using an appropriate cable, connect the device to your RS-485 port. These ports are available via the I/O terminal connector.

• PTZ settings
-. Enable - Check the box to enable the PTZ function.
-. Protocol - Select the PTZ camera you wish to configure.
-. Device ID - Setting PTZ Camera Address (ID)

▼ RS485



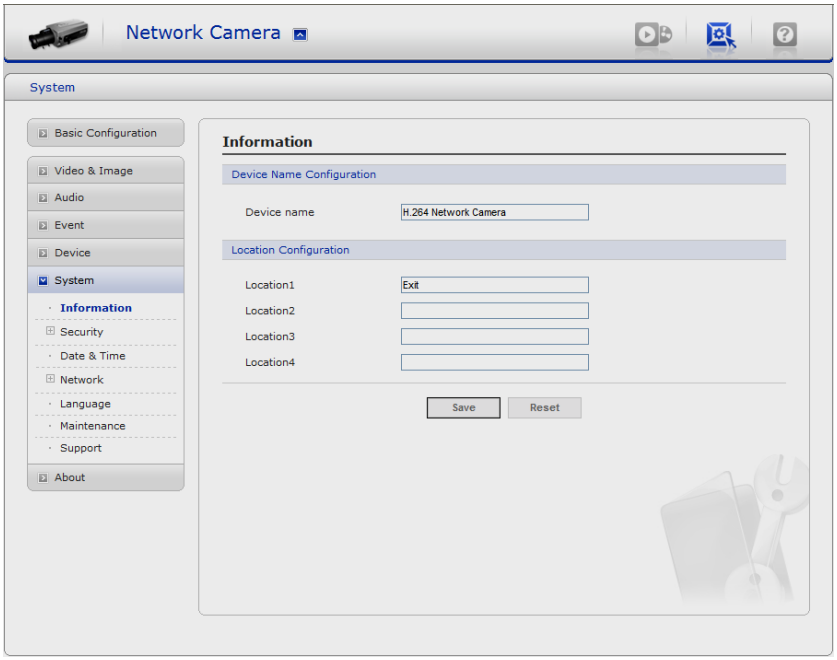
• RS485 settings
-. Baud rate - Select a Baud Rate in the drop-down list. (Default 9600 bps)
-. Data bits - Select Data Bits in the drop-down list. (Default None)
-. Parity bits - Select Parity Bits in the drop-down list. (Default 8 bits)
-. Stop bits - Select Stop Bits in the drop-down list. (Default 1 bit)

Factory Default:
-. Baud rate : 9600 bps
-. Data bits : None
-. Parity bits : 8 bits
-. Stop bits : 1 bit

3.6.6 System

3.6.6.1 Information

You can enter the system information. This page is very useful when you refer device information after installation.

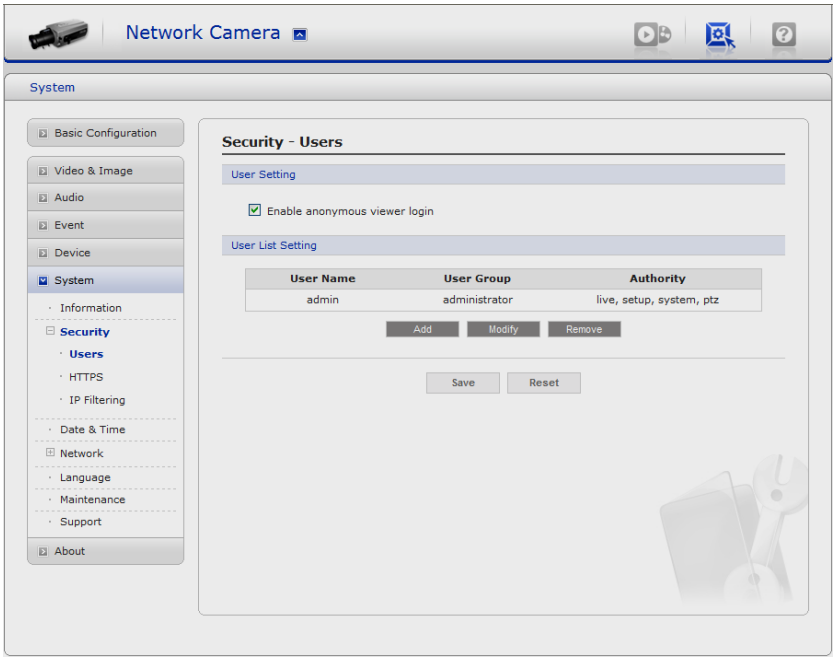


- Device Name Configuration
  Enter the device name.

- Location Configuration
  Enter the location information. You can enter that by four.

3.6.6.2 Security

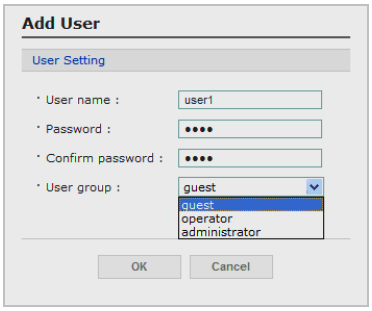
▼ Users



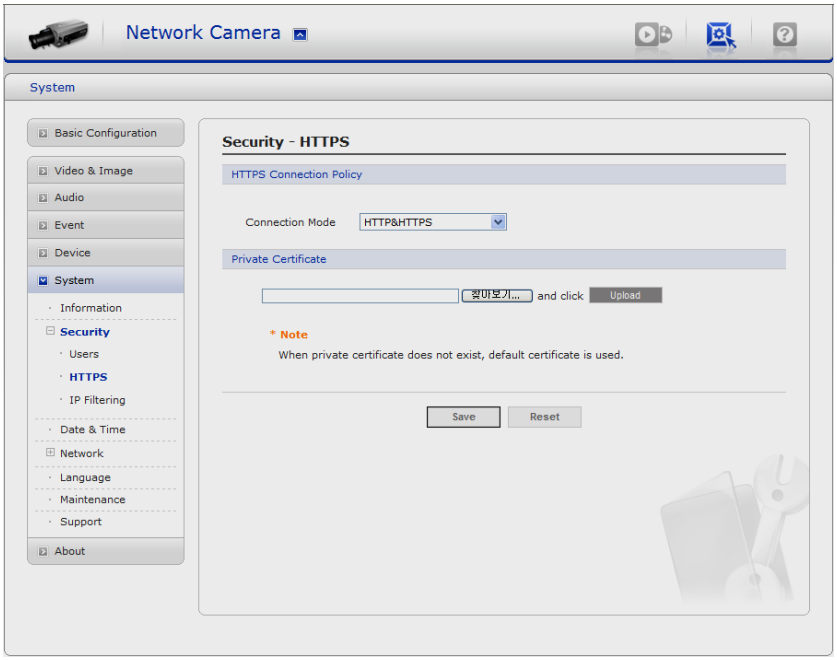
User access control is enabled by default, when the administrator sets the root password on first access. New users are authorized with user names and passwords, or the administrator can choose to allow anonymous viewer login to the Live View page, as described below:

• User Setting
  Check the box to enable anonymous viewer login to the Network Camera without the user account. When using the user account, users have to try log-in at every access.

• User List Setting
  This section shows a registered user account. Enter a user name and password to be added, and register them by pressing the Add button. You can see the pop-up window as below.



▼ HTTPS



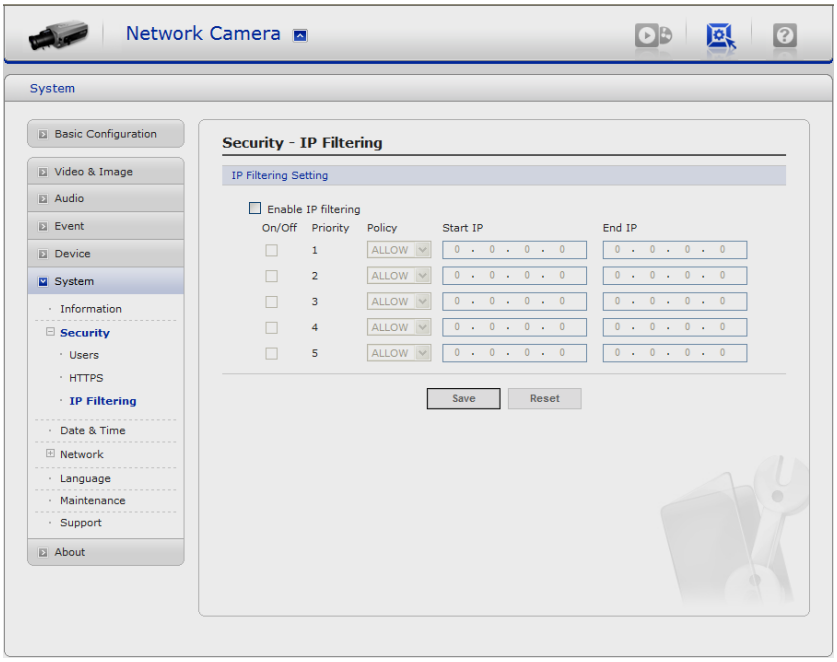
For greater security, the Network Camera can be configured to use HTTPS (Hypertext Transfer Protocol over SSL (Secure Socket Layer)). That is, all communication that would otherwise go via HTTP will instead go via an encrypted HTTPS connection.

• HTTPS Connection Policy
  Choose the form of connection you wish to use from the drop-down list for the administrator, Operator and Viewer to enable HTTPS connection (set to HTTP by default).
  -. HTTP
  -. HTTPS
  -. HTTP & HTTPS

• Upload Certificate
  To use HTTPS for communication with the Network Camera, An official certificate issued by a CA (Certificate Authority) must be uploaded from your PC. Provide the path to the certificate directly, or use the **Browse** button to locate it. Then click the **Upload** button.

Please refer to the home page of your preferred CA for information on where to send the request. For more information, please see the online help.

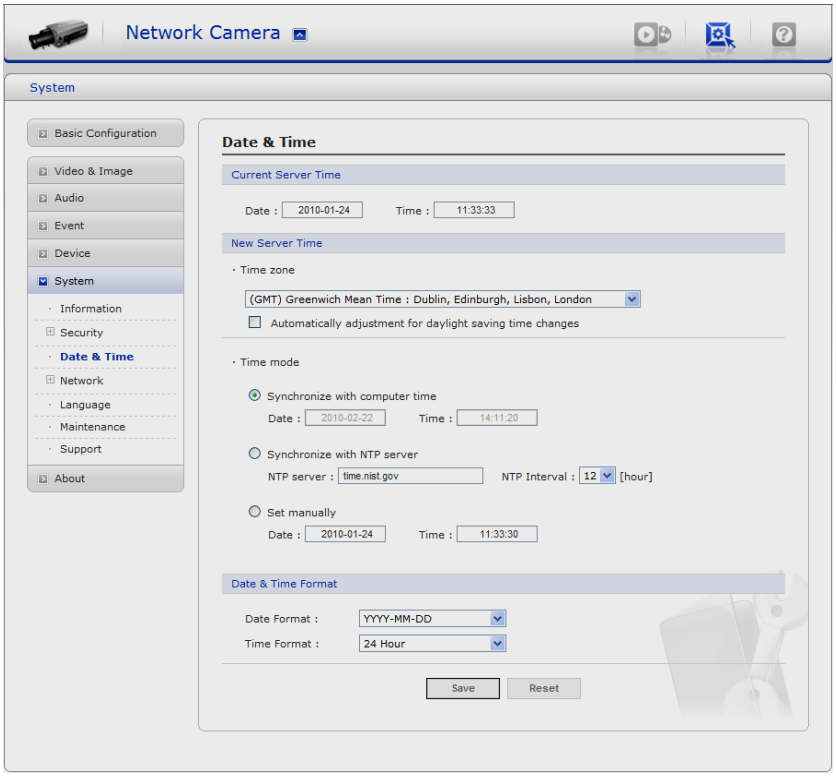
▼ IP Filtering



Checking the **Enable IP address filtering** box enables the IP address filtering function. Up to 256 IP address entries may be specified (a single entry can contain multiple IP addresses). Click the **Add** button to add new filtered addresses.
When the IP address filter is enabled, addresses added to the list are set as allowed **or** denied addresses. All other IP addresses not in this list will then be allowed or denied access accordingly, that is, if the addresses in the list are allowed, then all others are denied access, and vice versa. See also the online help for more information.

Note that users from IP addresses that will be allowed must also be registered with the appropriate access rights (Guest, Operator or Administrator). This is done from Setup> System>Security>Users.

3.6.6.3 Date & Time



• Current Server Time

It displays the current date and time (24h clock). The time can be displayed in 12h clock format in the overlay (see below).

• New Server Time

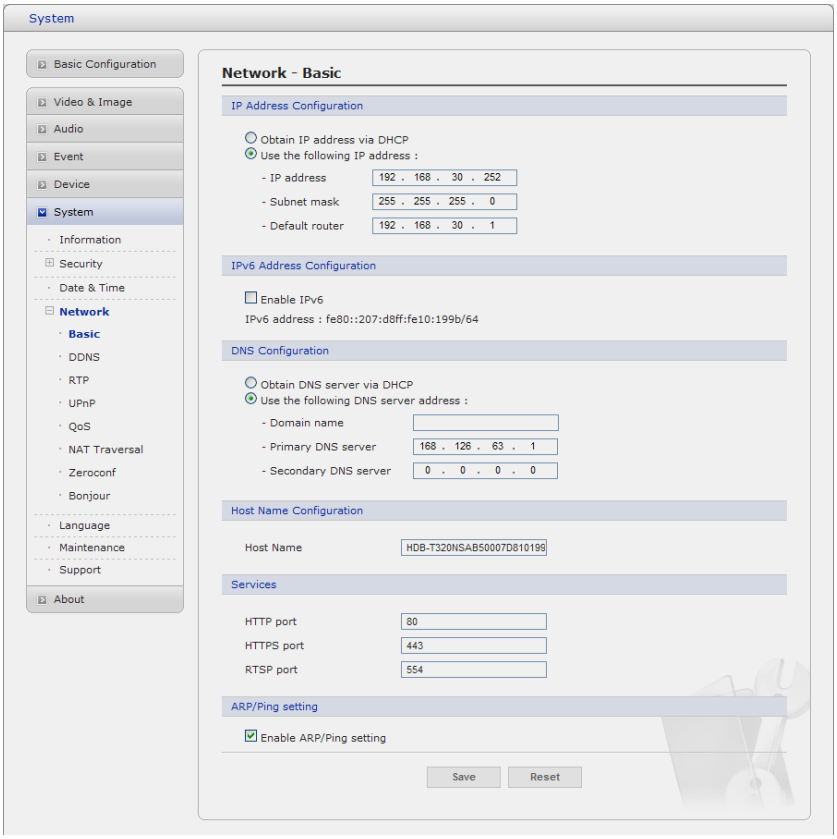
Select your time zone from the drop-down list. If you want the server clock to automatically adjust for daylight savings time, select "Automatically adjustment for daylight saving time changes".

From the **Time Mode** section, select the preferred method to use for setting the time:

-. Synchronize with computer time - sets the time from the clock on your computer.
-. Synchronize with NTP Server - the network camera will obtain the time from an NTP server every 60 minutes.
-. Set manually - this option allows you to manually set the time and date.

Note: Note that if using a host name for the NTP server, a DNS server must be configured under TCP/IP settings.

3.6.6.4 Network



Setting in regard to network can be executed. Settings for IP, DNS, Host Name, Port, and ARP/Ping can be established, along with setting for DDNS, uPnP, QoS, Zeroconfig, and Bonjour.

▼ **Basic**

• IP Address Configuration:
-. Obtain IP address via DHCP - Dynamic Host Configuration Protocol (DHCP) is a protocol that lets network administrators centrally manage and automate the assignment of IP addresses on a network. DHCP is enabled by default. Although a DHCP server is mostly used to set an IP address dynamically, it is also possible to use it to set a static, known IP address for a particular MAC address.
-. Use the following IP address - To use a static IP address for the Network Camera, check the radio button and then make the following settings:
* IP address - Specify a unique IP address for your Network Camera.
* Subnet mask - Specify the mask for the subnet the Network Camera is located on.
* Default router - Specify the IP address of the default router (gateway) used for connecting devices attached to different networks and network segments.

• IPv6 Address Configuration
Check this box to enable IPv6. Other settings for IPv6 are configured in the network router.

• DNS Configuration
DNS (Domain Name Service) provides the translation of host names to IP addresses on your network.
-. Obtain DNS Server via DHCP - Automatically use the DNS server settings provided by the DHCP server. Click the View button to see the current settings.
-. Use the following DNS server address to enter the desired DNS server by specifying the following:
* Domain name - enter the domain(s) to search for the host name used by the Network Camera. Multiple domains can be separated by semicolons (;). The host name is always the first part of a Fully Qualified Domain Name, for example, myserver is the host name in the Fully Qualified Domain Name myserver.mycompany.com where mycompany.com is the Domain name.
* DNS servers - enter the IP addresses of the primary and secondary DNS servers.

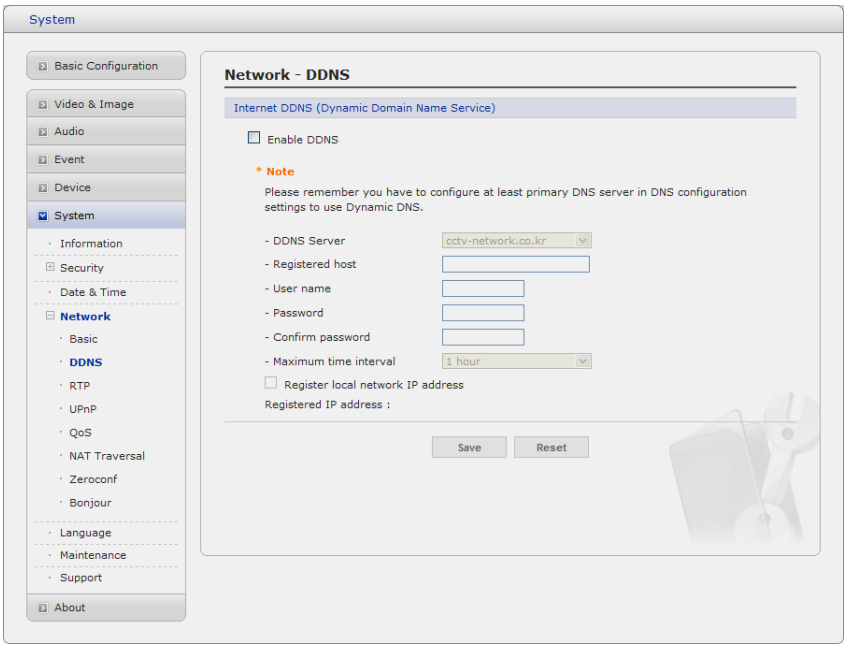
• Host Name Configuration
-. Host Name – enter the host name to be used as device information in the client software or SmartManager.

• Services
-. HTTP port: Enter a port to receive a service through the HTTP. Default Port Number is '80'.
-. HTTPS port: Enter a port to receive a service through the HTTPS. Default Port Number is '443'.
-. RTSP port: Enter a port to receive a service through the RTSP. Default Port Number is '554'.

• ARP/Ping Setting
-. Enable ARP/Ping setting of IP address - The IP address can be set using the ARP/Ping method, which associates the unit's MAC address with an IP address. Check this box to enable the service.

Leave disabled to prevent unintentional resetting of the IP address.

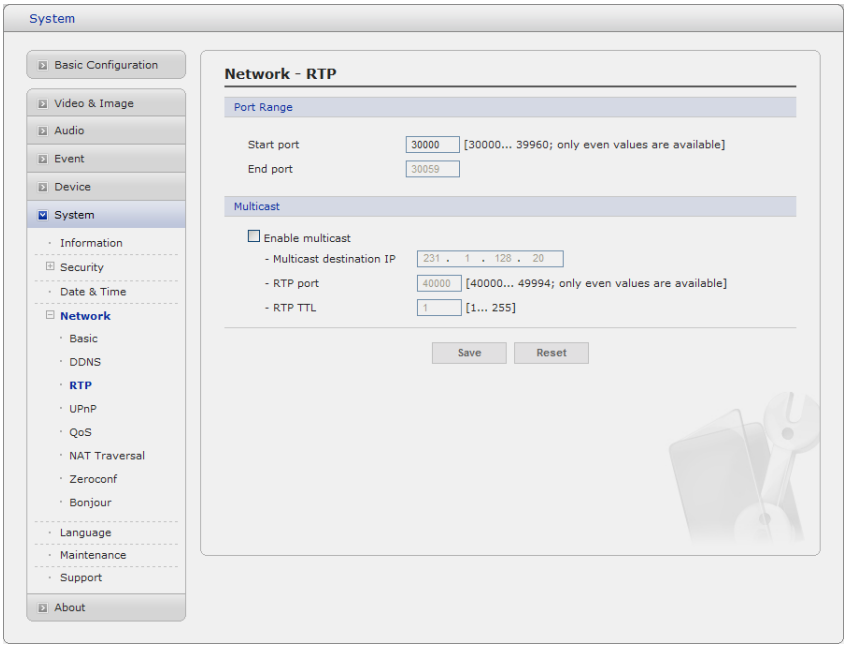
▼ DDNS



• Internet DDNS(Dynamic Domain Name Service)
When using the high-speed Internet with the telephone or cable network, users can operate the Network Camera even on the floating IP environment in which IPs are changed at every access.
Users should receive an account and password by visiting a DDNS service like http://www.dyndns.com/, or http://www.cctv-network.co.kr/.

-. Enable DDNS - Check to get DDNS service to be available.
* DDNS Server: Select the DDNS server.
* Registered host: Enter an address of the DDNS server.
* Username: Enter an ID to access to the DDNS server.
* Password: Enter a password to be used for accessing the DDNS server.
* Confirm: Enter a password again to confirm it.
* Maximum time interval: Set a time interval to synchronize with the DDNS server.
Select an item in the interval drop-down list.
* Register local network IP address: Click this box to register the camera IP address to DDNS server in case that the network camera and Client are in the local network environment. You don't need to click this box in case that the Client is not in the local network environment.

▼ RTP



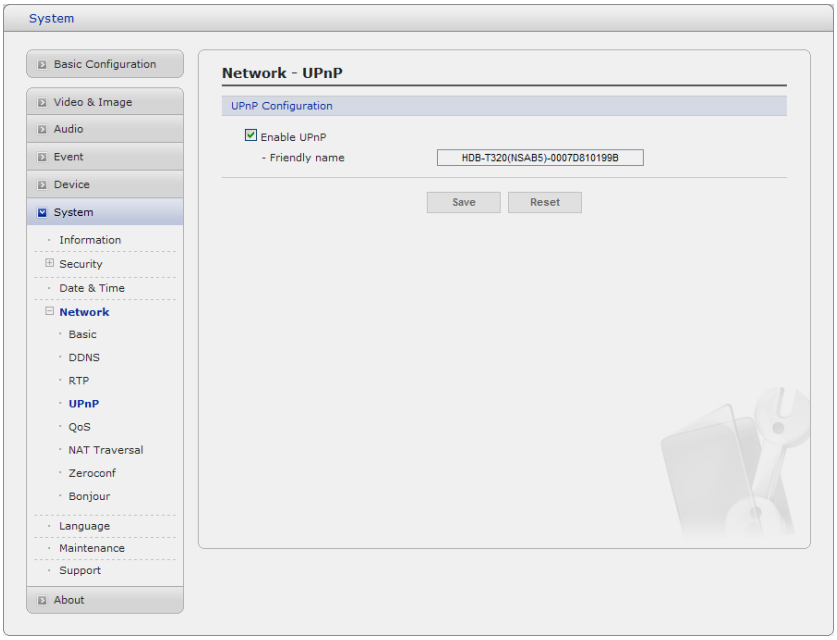
Have a setting for sending and receiving an audio or video on a real-time basis. These settings are the IP address, port number, and Time-To-Live value to use for the media stream(s) in multicast H.264 format. Only certain IP addresses and port numbers should be used for multicast streams. For more information, please see the online help.

• Port Range
-. Start port - Enter a value between 1024 and 65532

• Multicast
This function is for sending Video and Audio to Multicast group.

-. Enable Multicast - Check the box to enable multicast operation.
-. Multicast destination IP - Enter an IP between 224.0.0.0 and 239.255.255.255. Although it is empty, an IP will be entered automatically.
-. RTP port: Enter a value between 1024 and 65532.
-. RTP TTL: Enter a value between 1 and 255. If a network status is smooth, enter a lower value. On the other hand, if a network status is poor, enter a higher value. When there are many Network Cameras or users, a higher value may cause a heavy load to the network. For a detailed setting, please consult with a network manager.

▼ UPnP



The Network Camera includes support for UPnP™. UPnP™ is enabled by default, and the Network Camera then is automatically detected by operating systems and clients that support this protocol.

Note: UPnP™ must be installed on your workstation if running Windows XP. To do this, open the Control Panel from the Start Menu and select Add/Remove Programs. Select Add/Remove Windows Components and open the Networking Services section. Click Details and then select UPnP™ as the service to add.

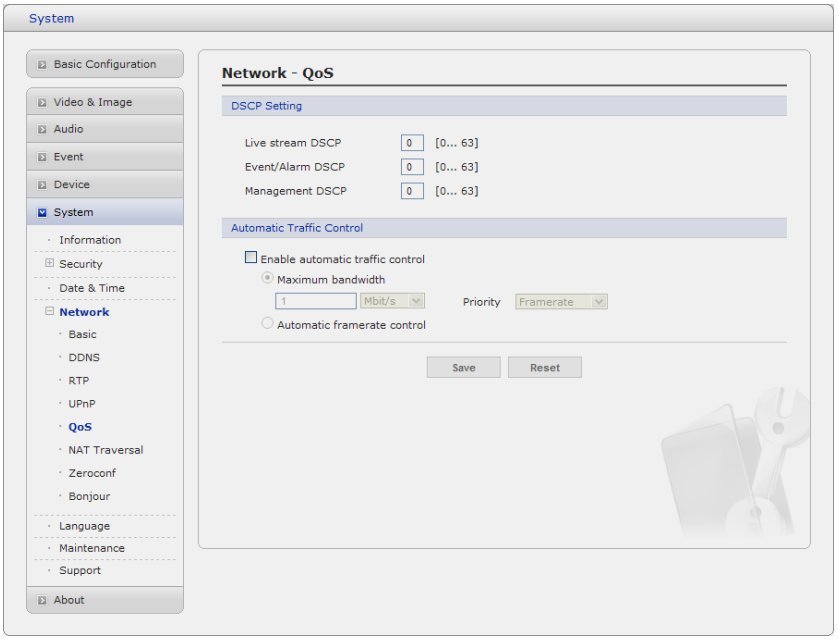
▼ QoS

Quality of Service (QoS) provides the means to guarantee a certain level of a specified resource to selected traffic on a network. Quality can be defined as a maintained level of bandwidth, low latency, and no packet losses.

The main benefits of a QoS-aware network are:

-. The ability to prioritize traffic and thus allow critical flows to be served before flows with lesser priority.

-. Greater reliability in the network, thanks to the control of the amount of bandwidth an application may use, and thus control over bandwidth races between applications.



• DSCP Settings

For each type of network traffic supported by your network video product, enter a DSCP (Differentiated Services Code Point) value. This value is used to mark the traffic's IP header. When the marked traffic reaches a network router or switch, the DSCP value in the IP header tells the router or switch which type of treatment to apply to this type of traffic, for example, how much bandwidth to reserve for it. Note that DSCP values can be entered in decimal or hex form, but saved values are always shown in decimal.

The following types of traffic are marked:

-. Live Stream DSCP:
-. Event/Alarm DSCP:
-. Management DSCP:

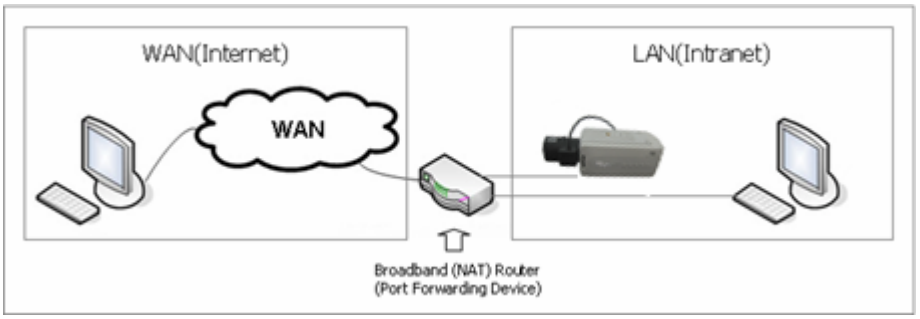
• Auto Traffic Control
Set a limitation on user network resources by designating the maximum bandwidth.

-. Maximum bandwidth - In case of sharing other network programs or equipment, it is possible to set a limitation on the maximum bandwidth in the unit of Mbit/s or kbit/s.
-. Auto frame rate - Selected if not influenced by a network-related program or equipment without a limitation on the network bandwidth.

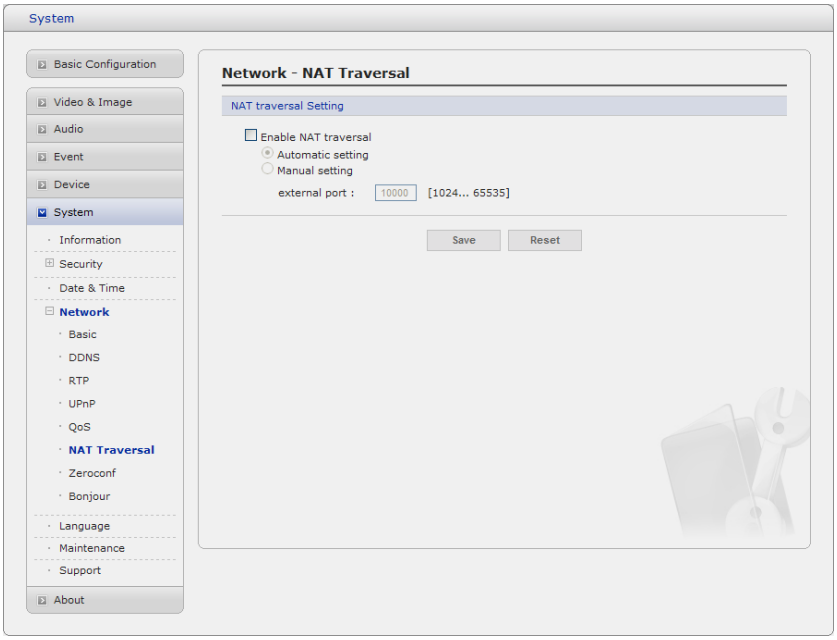
▼ NAT Traversal

A broadband router allows devices on a private network (LAN) to share a single connection to the Internet. This is done by forwarding network traffic from the private network to the "outside", that is, the Internet. Security on the private network (LAN) is increased since most broadband routers are pre-configured to stop attempts to access the private network (LAN) from the public network/Internet.

Use **NAT traversal** when your network cameras are located on an intranet (LAN) and you wish to make it available from the other (WAN) side of a NAT router. With NAT traversal properly configured, all HTTP traffic to an external HTTP port in the NAT router is forwarded to the network camera.



Notes:
-. For NAT traversal to work, this must be supported by the broadband router.
-. The broadband router has many different names:
"NAT router", "Network router", Internet Gateway", "Broadband sharing device" or "Home firewall" but the essential purpose of the device is the same.



• NAT traversal Settings

-. Enable - when enabled, the network camera attempt to configure port mapping in a NAT router on your network, using UPnP™. Note that UPnP™ must be enabled in the Network Camera (see System>Network>UPnP).

* automatic setting: The Network Camera automatically search for NAT routers on your network.
* manual setting: Select this option to manually select a NAT router and enter the external port number for the router in the field provided.

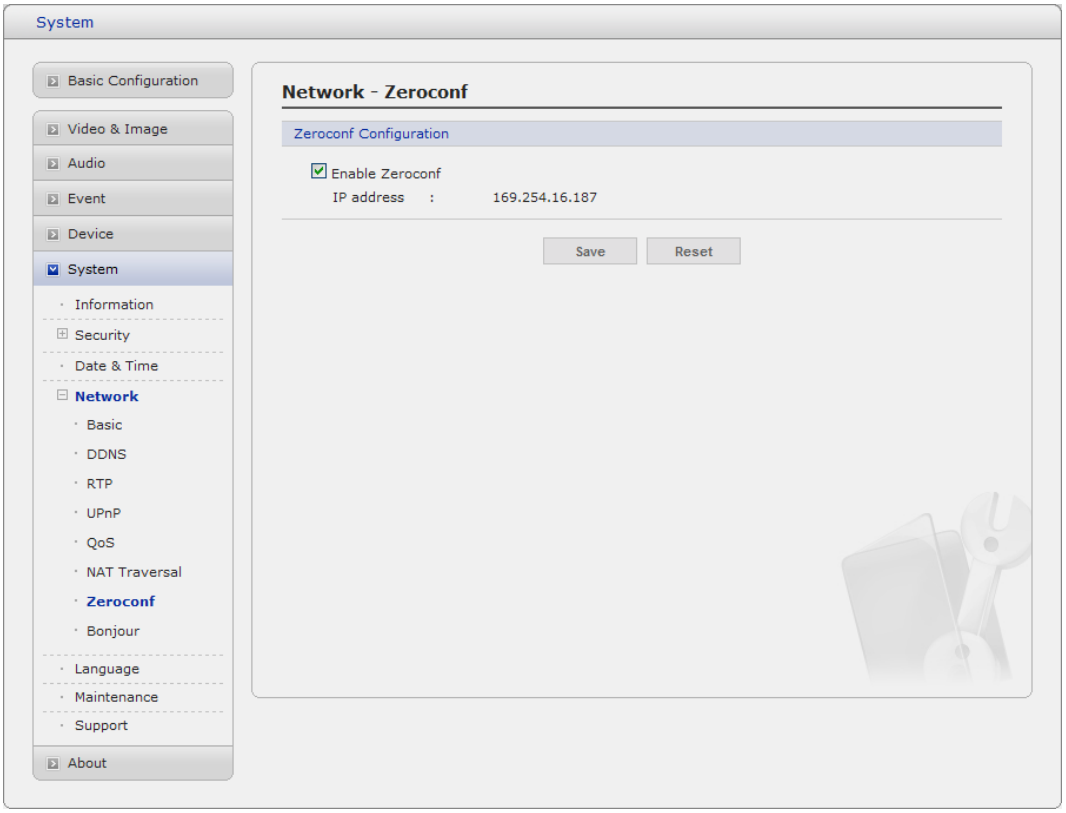
Notes:

-. If you attempt to manually enter a port that is already in use, an alert message will be displayed.

-. When the port is selected automatically it is displayed in this field. To change this enter a new port number and click Save.

▼ Zeroconfig

Zeroconfig allows the network camera to create and assign IP address for network cameras and connect to a network automatically.



Zero configuration networking (zeroconf), is a set of techniques that automatically creates a usable Internet Protocol (IP) network without manual operator intervention or special configuration servers.

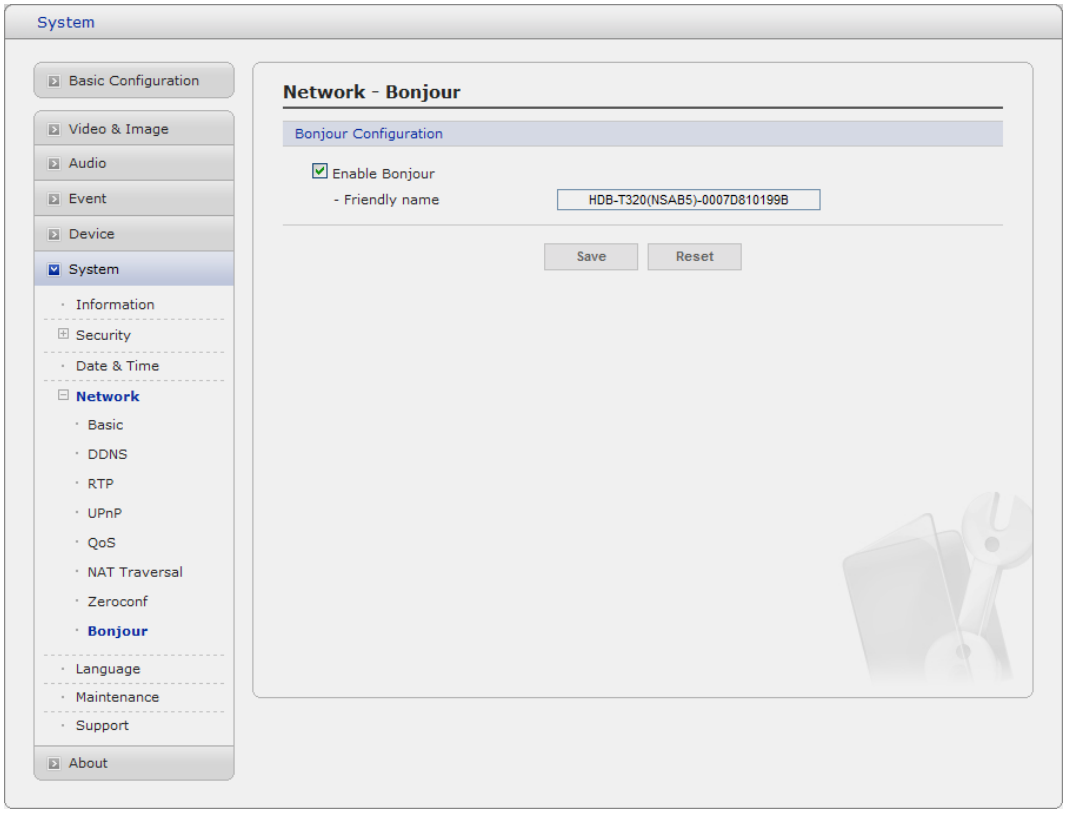
Zero configuration networking allows devices such as computers and printers to connect to a network automatically. Without zeroconf, a network administrator must set up services, such as Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS), or configure each computer's network settings manually, which may be difficult and time-consuming.

Zeroconf is built on three core technologies:

- Assignment of numeric network addresses for networked devices (link-local address auto configuration)
- Automatic resolution and distribution of computer hostnames (multicast DNS)
- Automatic location of network services, such as printing devices through DNS service discovery.

▼ Bonjour

The network camera includes support for Bonjour. When enabled, the network camera is automatically detected by operating systems and clients that support this protocol.

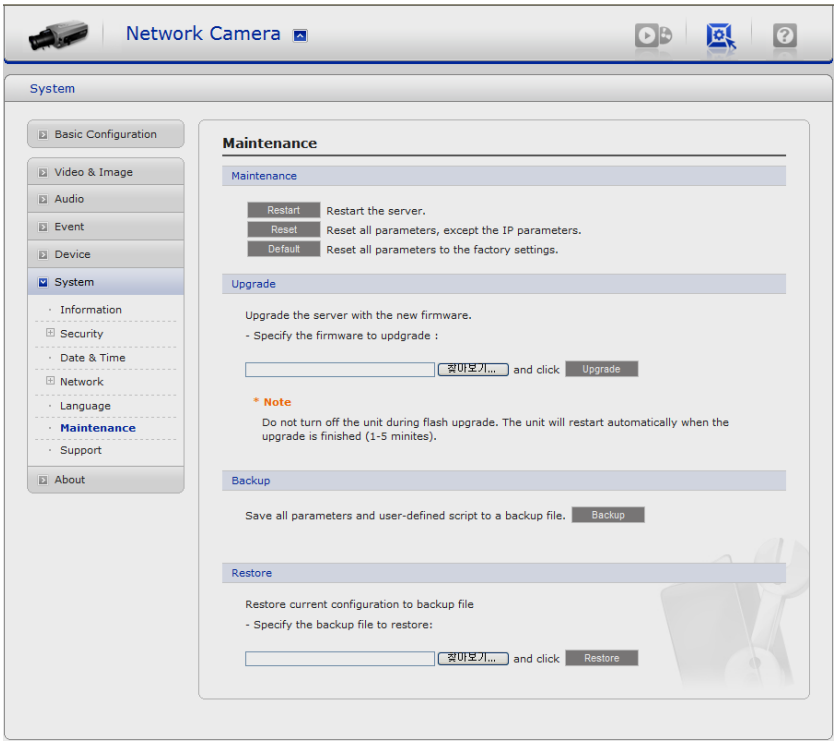


Note: Bonjour - Also known as zero-configuration networking, Bonjour enables devices to automatically discover each other on a network, without having to enter IP addresses or configure DNS servers. Bonjour is a trademark of Apple Computer, Inc.

3.6.6.5 Language

It will be able to select a user language. The type of language it will be able to select is the English, the French, the German, the Spanish and the Italian.

3.6.6.6. Maintenance



• Maintenance Server
 -. Restart - The unit is restarted without changing any of the settings. Use this method if the unit is not behaving as expected.
 -. Restore - The unit is restarted and most current settings are reset to factory default values. The settings that are not affected are:
  - the boot protocol (DHCP or static)
  - the static IP address
  - the default router
  - the subnet mask
  - the system time
 -. Default - The default button should be used with caution. Pressing this will return all of the Network Camera's settings to the factory default values (including the IP address)

• Update Server
 Carry out the upgrade by importing an upgrade file and pressing the Upgrade button. During the upgrade, do not turn off the power of the Network Camera. And try an access again after waiting five minutes or longer.

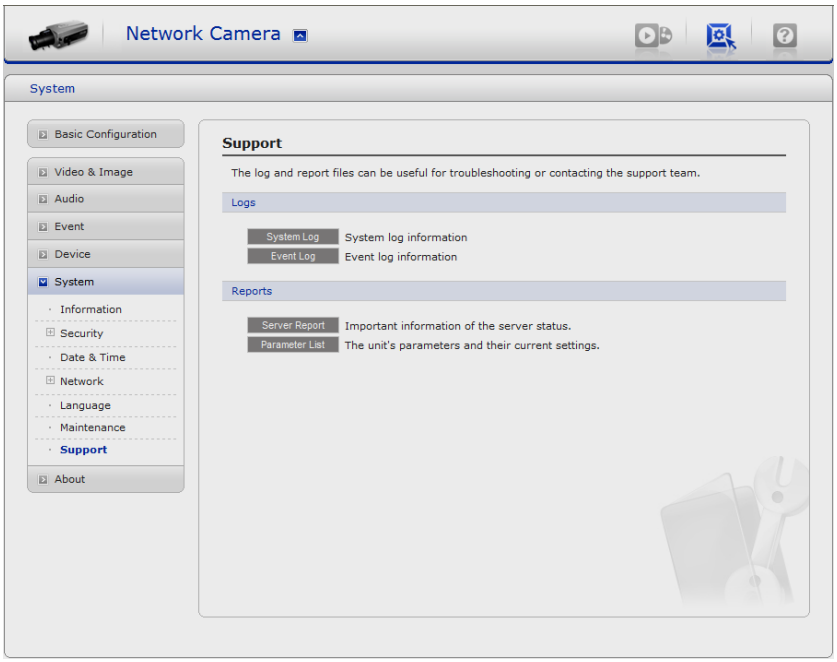
• Backup
 Save a setting value that users enter to the Network Camera, to a user PC.

• Restore
 Import and apply a setting value saved to a user PC.

Note: Backup and Restore can only be used on the same unit running the same firmware. This feature is not intended for multi-configurations or for firmware upgrades.

3.6.6.7 Support

The support page provides valuable information on troubleshooting and contact information, should you require technical assistance.



• Logs
The network Camera support system log information. Click the System Log button to get the log data.

• Update Server
-. Server Report – Click the Server Report button to get the important information about the server's status and should always be included when requesting support.

-. Parameter List – Click the Parameter List button to see the unit's parameters and their current settings.

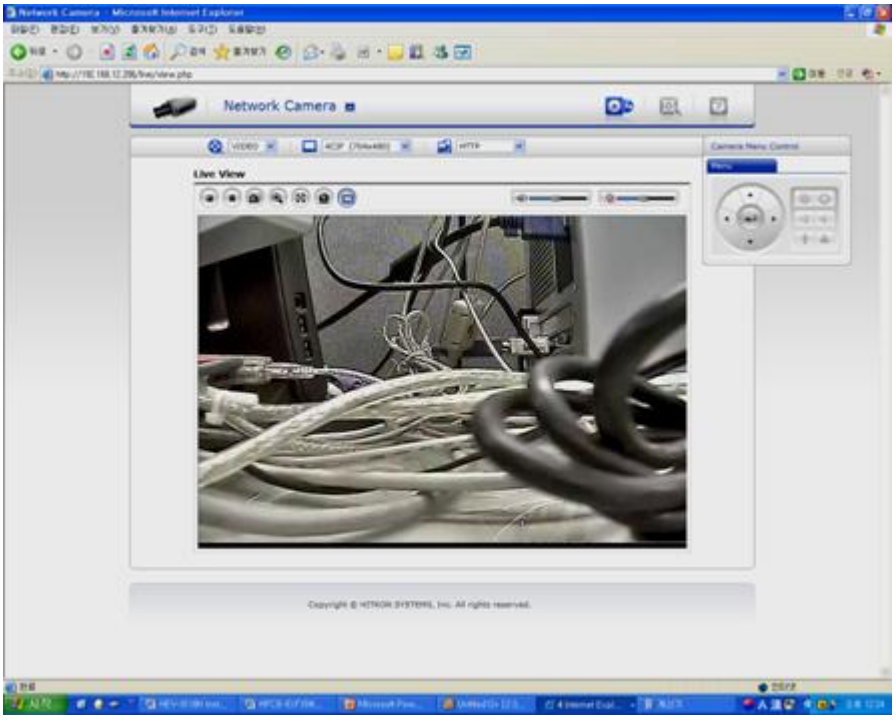
3.6.7 About

The following website will provide the support information for the Network Camera information and operation.

3.8 Camera Menu Control

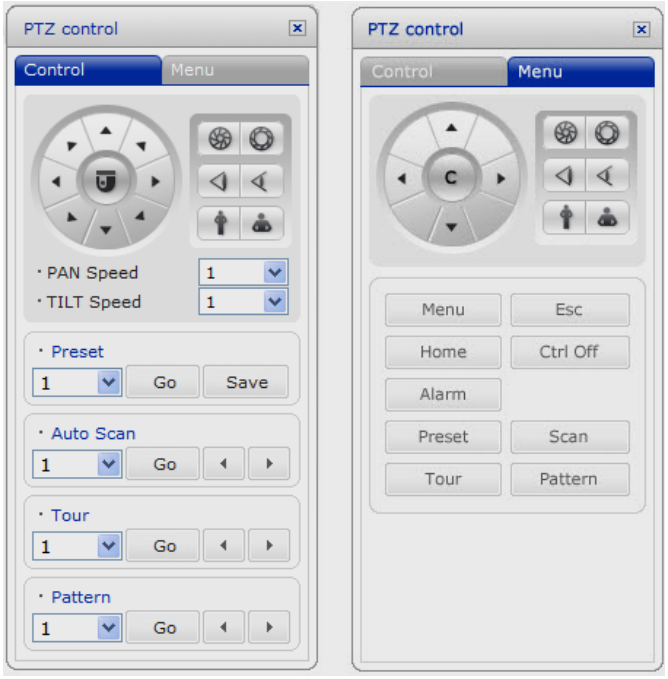
You can control camera menu in the live screen. Press the button on the left top in the live screen to activate the camera's menu control panel.

Menu Control Panel



3.9 PTZ Control

You can control a PTZ or PT device in the live screen. Press the button on the left top in the live screen to activate the PTZ control panel.



PTZ Control Panel PTZ Menu Panel

Direction Buttons

Iris/Focus/Zoom Buttons

• Control Panel

-. Left/Right button: Go into the sub-menu items. Execute the command (exit). Change value. Navigate through the menu items.

-. Up/Down button: Navigate through the menu items

-. PAN/TILT Speed: It sets a speed when adjusting the PTZ Camera. The higher a value is, the faster a speed will be.

-. Focus: Overrides auto focus. Moving the Zoom handle reactivates Auto Focus mode.

-. Iris: Overrides auto iris. Moving the joystick reactivates Auto Iris mode.

-. Zoom: Zoom control.

• Manu Panel
-. Menu: Enters programming menu.
-. Esc: Cancels current inputs. Exits from currently running functions or menu, error status, etc
-. Home: Immediately calls Home function. Deletes selected value or function in programming mode
-. Ctrl Off: Control function.
ex) CTRL + Up, Down, Right, Left Button >> Operated turbo mode.
-. Preset: Pressing the Preset will bring up the preset programming menu.
-. Auto Scan: Pressing the Scan will bring up the Auto Scan programming menu.
-. Tour: Pressing the Tour button will bring up the tour programming menu directly.
-. Pattern: Pressing the Pattern button will bring up the pattern programming menu directly.

3.10 Help

The Help information window will be provided as a popup window so that users can open and read it without a need for log-in. It will offer a description on setting and Help page by which users can manipulate the Network Camera without a reference to the manual.

http://192.168.30.220 - Network Camera - Microsoft Internet Explorer
Help
Live View
Video & Image
Audio
Event
System
Live View
• Live View
The Live View page can display live video from network camera (or transmitter).
It also provides you to select video source, resolution, stream type and ROI (Region Of Interest).
• The Control Toolbar
The Show/Hide Toolbar button toggles to show and hide the Control Toolbar.
• Source
Select the stream source from the drop-down list.
• View Size
Select the displaying resolution from the drop-down list.
• Stream Type
Select the stream protocol from the drop-down list.
- UDP
UDP uses a simple transmission model. Thus it provides an unreliable service.
- TCP
TCP provides reliable stream. But in lower bandwidth network, stream can be delayed.
완료
인터넷

3.11 Resetting to the factory default settings

To reset the Network Camera to the original factory settings, go to the Setup>System> Maintenance web page (described in "3.6.6.6 Maintenance") or use the control button on the network camera, as described below:

• Using the Reset Button

Follow the instructions below to reset the Network Camera to the factory default settings using the Reset Button.

1. Switch off the Network Camera by disconnecting the power adapter.
2. Press and hold the Control Button with a straightened paperclip while reconnecting the power.
3. Keep the Control button pressed until the Status indicator blink.
4. Release the Control Button.
5. When the Power Indicator changes to Green (may take up to 40 seconds), the process is complete and the network video camera has been reset.
6. The network camera resets to factory defaults and restarts after completing the factory reset.

CAUTION: When performing a Factory Reset, you will lose any settings you have saved.

4. Appendix

4.1 Troubleshooting

Troubleshooting if problems occur, verify the installation of the Network Camera with the instructions in this manual and with other operating equipment. Isolate the problem to the specific piece of equipment in the system and refer to the equipment manual for further information.

Problems/Symptoms	Area to Check
No video	Verify that power is connected to all pieces of equipment in the system. Verify that the power switches are in the ON position. Check the video connections.
Poor video quality.	Check that the BNC connectors are inserted properly. Check the voltage level of the Network Camera. Cable for video is shielded.
Camera number does not match the number on PC Program or Web browser.	Check the camera ID of the 1CH Network Camera. Check PTZ setting on the PC Program and Web browser.
Frame rate decrease.	Change current value more lower resolution, compression rate and frame rate.
A connection is cut-off at short intervals.	Check network traffic and contact with network administrator.

4.2 Preventive Maintenance

Preventive maintenance allows detection and correction of minor that faults before they become serious and cause equipment failure.

Every three-month, perform the following maintenance.

1. Inspect all connection cables for deterioration or other damage.
2. Clean components with a clean damp cloth.
3. Verify that all the mounting hardware is secure.

4.3 Product Specification

Main Item		NTSC	PAL
Image sensor		1/3" SONY Super HAD CCD	
Total pixels		811(H)x508(V)	795(H)x596(V)
Scanning system		2:1 interlace	
Scanning frequency		15.734Khz(H)x59.94Hz(V)	15.625Khz(H)x50Hz(V)
Sync. system		Internal / Line lock	
Resolution		560 TV lines	
Min. illumination		Color: 0.25 Lux, B/W: 0.01 Lux (Sense-Up: Off)	
S/N ratio		50dB (AGC Off)	
FUNCTION	DNR (Digital Noise Reduction)	On/Off (Adjustable Gain)	
	D-WDR (Digital Wide Dynamic Range)	On (Indoor/Outdoor)/Off	
	BLC (Back Light Composite)	BLC/HSBLC/OFF Adjustable Size & Gain	
	Day & Night (True D/N)	Color/B/W/Auto(Filter auto change)/EXT	
	MD (Motion Detection)	On/Off (4 Programmable zone)	
	Sense-Up (Low Shutter Speed)	Auto/Off (Selectable limit 2x ~ 256x)	
	PM (Privacy Masking)	On/Off (8 Programmable zone)	
	WB (White Balance)	AWB/ATW/AWC/Manual/Indoor/Outdoor	
	AGC (Auto White Balance)	On(Low/Middle/High)/Off	
	Electric Shutter Speed	Auto/Flickerless/Manual(256x, 1/60 ~ 1/100,000)	
	Sharpness	On/Off(Level adjustable)	
	Flip	Horizontal/Vertical/Rotate	
	Effect	D-Zoom x32(Pan/Tilt)/Nega/Freeze	
	Setup Method	OSD Setup menu	
	OSD Language	English/Korean/Japanese	
NETWORK	Video Compression	Motion JPEG MPEG-4 Part2 H.264 (MPEG-4 Part 10) Profiles: H.264 MP and BP, MPEG-4 ASP and SP	
	Video Resolutions	160x120 ~ 704x480	160x120 ~ 704x576
	Frame Rate	Up to 30/25fps[NTSC/PAL] @ all resolutions	
	Video Streaming	Simultaneously H.264(or MPEG-4) and MJPEG Controllable Frame Rate and Bandwidth VBR/CBR H.264 and MPEG-4	
	Audio Compression	G.711 ADPCM 40kbps~16kbps	
	Audio Streaming	2 Way	
	Protocol	TCP/IP, UDP, IPv4/v6, HTTP, HTTPS, QoS, FTP, SNMP, uPnP, RTP, RTSP, RTCP, DHCP, ARP, Zeroconf, Bonjour	
	Security	Multi-user authority, HTTPS, IP Filtering, Privacy Zone	
	Max. Connection	10	
	API Programming Interface	API Supported, Open Platform Compatible: ONVIF	
	Alarm Triggers	Motion Detection, External Input, Manual Trigger	

NETWORK	Alarm Events	File upload via FTP and HTTP Notification via E-mail, HTTP and TCP External Output activation Audio Alert activation
	Video Buffering	Pre and Post Alarm
	Motion Detection	Yes, max. 8 programmable zone
	Network Time Synchronization	Yes
	Software Reset	Yes
	Factory Reset	Yes, Button/Web browser
	Auto Recovery	Yes
	Installation Tool	SmartManager, NCTitanium
	Upgrade	Web browser, SmartManager, NCTitanium
GENERAL	Alarm Input	Terminal, 1 TTL input
	Alarm Output	Terminal, 1 open collector(max. 24V DC, max. 100mA)
	Ethernet	RJ-45 10BASE-T/100BASE-TX PoE
	Video Output	BNC, 1.0 Vp-p (75ohm, composite)
	Audio In/Out	Terminal, 1 line input /1 line output
	Auxiliary	Terminal, RS485 Tx+/Tx-
	Buttons	Side: Up/Down/Left/Right/Enter, Rear: Factory Reset
	LED Indicators	Power, Status, Network
	Auto IRIS Output	4-Pin mini Din jack [Standard connection]
	Lens Mount	C/CS mount [Selected through back focus]
	Casing	Metal Casing, Standalone or with Bracket for wall mount
	Operating Temperature	0°C ~ 45°C
	Operation Humidity	0~90% (non-condensing)
	Power Consumption	AC24/DC12V max. 6.5watt, Power over Ethernet IEEE 802.3af Class2/3
	Dimensions (W x H x D)	3.1" / 78.8mm X 2.52"/64mm X 4.83"/118.4mm
	Unit Weight	350g
	Approval	FCC, CE, UL, MIC

System Requirement for Web Browser

- Operating System: Microsoft Windows 98, Microsoft Windows ME, Microsoft Windows 2000, Microsoft Windows XP, or Microsoft Windows Vista
- CPU: Over Pentium IV 2.4Ghz, 512MB RAM, 10GB free disk or higher
- VGA: AGP, Video RAM 32MB or higher (1024x768, 24bpp or higher)

NETWORK
BOX CAMERA

Printed in Korea